1999 NONRESIDENTIAL LARGE SPC EVALUATION STUDY

FINAL REPORT

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January 10, 2001

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EXECUTIVE SUMMARY

This report presents results from an ongoing, comprehensive evaluation of California's 1998 Nonresidential Standard Performance Contract Program (1998 NSPC) and 1999 Large Nonresidential Standard Performance Program (1999 LNSPC). We refer to both Programs collectively as the "large nonresidential SPC Programs."

E.1 EVALUATION CONTEXT, SCOPE, AND TIMELINE

The large nonresidential SPC Programs contain elements associated with both resource acquisition *and* market transformation program strategies. Perhaps the two elements of the large nonresidential SPC Programs that share the broadest support are the general notions that the Programs should provide cost-effective net-energy savings (and, increasingly, peak demand reductions) and produce a net increase in the amount of sustainable business that is conducted between third-party energy-efficiency service providers (EESPs) and end users.

Although the 1998 NSPC and 1999 LNSPC Programs include both resource-acquisition and market-transformation design intentions, this evaluation focuses more on the latter than on the former, although many aspects of the research apply equally to both elements. Under the objectives of this evaluation, the bulk of our resources were focused on process evaluation, market assessment, and analysis of potential near-term market effects.

It is important to note that the 1998 NSPC and 1999 LNSPC Program designs do not require the type of impact evaluation study that was typically conducted for utility programs for years prior to 1998. This is because the project-specific measurement and verification (M&V) requirements of program participation ultimately will produce an ex post measurement of energy savings for every program contract. Because M&V results lag project installation by at least a year, however, few projects-specific M&V results are yet available.

E.1.1 Objectives and Scope

The main objectives of this evaluation are as follows:

1. **General Program Evaluation.** The evaluation component of this study includes analyses of program processes, market effects, and program tracking data for both the 1998 NSPC and the 1999 LNSPC Programs. A free-ridership analysis of the 1999 LNSPC Program also is included in this study.
2. **Follow-up on the 1998 NSPC Program.** This element focuses on interviewing customers and EESPs that participated in the 1998 NSPC Program to provide follow-up results to those obtained in the first-year program evaluation conducted in 1999.
3. **Baseline Assessment.** This study element provides an assessment of the current market for energy-efficiency products and services for customers with over 500 kW in demand.

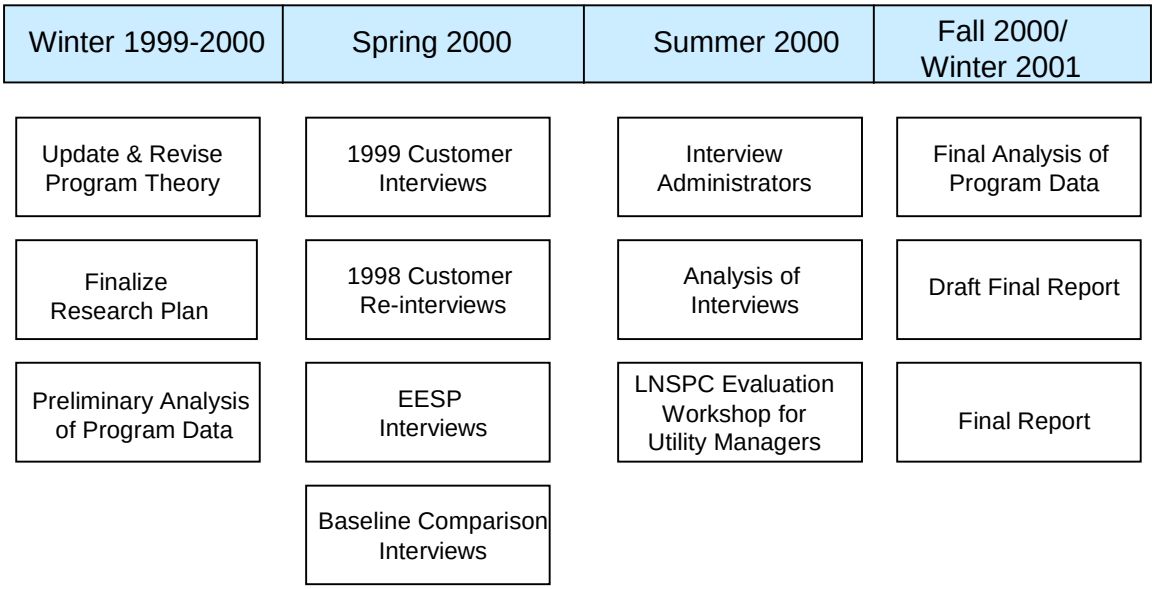
E.1.2 Summary of Approach and Study Timeline

The primary research conducted for this Study included the following:

- In-depth interviews with 41 customer participants in the 1999 LNSPC Program
- In-depth re-interviews with 29 customer participants in the 1998 NSPC Program
- Baseline surveys with 700 large customers within and outside California
- In-depth interviews with 24 EESP participants (for both 1998 and 1999 program years)
- Interviews with utility large nonresidential SPC Program managers and staff
- Integration and analysis of utility program tracking data
- Integration of results into key project findings.

A chronological summary of the key elements of the study is shown in Figure E-1.

Figure E-1
1999 LNSPC Evaluation Study Timeline



E.2 SUMMARY OF SECOND-YEAR FINDINGS

Our findings are organized into two parts. First, we present a summary of the program-related energy savings and basic participation trends. Second, we present a summary of findings associated with the process and market assessment aspects of the study.

E.2.1 Assessment of Net Energy-Savings and Tracking Data

As shown in Table E-1, the amount of projected savings in the large nonresidential SPC Programs increased from 187 GWh to 262 GWh between 1998 and 1999 (though some projects are still likely to cancel out of the 1999 Program). The total number of unique customers and applications also increased by about one third, while the number of EESPs and total incentive commitments remain about the same. The average incentive paid per kWh saved decreased principally due to a roughly 25 percent decrease in program incentive levels between 1998 and 1999. Note that all of the data shown in Table E-1 for the 1998 program year are different from the values reported in our 1998 first-year evaluation.[1]

Table E-1
Summary of Key Program Activity Indicators to Date[2]

Activity Level	1998	1999
Total unique customers	90	122
Total number of applications	139	179
Total unique third-party Energy-Efficiency Service Providers	33	33
Total incentives funds committed	$24.2 million	$24.2 million
Total incentives funds committed - PG&E	$6.3	$9.4
Total incentives funds committed - SCE	$10.3	$11.5
Total incentives funds committed - SDG&E	$7.5	$3.3
Percent of Incentives to Third-Party Sponsored Applications	58%	50%
Total Savings from active Basic Project Applications	162 GWh	262 GWh
Average Incentives per kWh	$0.150	$0.093

As a result of detailed interviews conducted with participating end users, estimates of the net-to-gross ratio for the both program years were developed.[3] As reported in the 1998 Evaluation

[1] XENERGY Inc. *Evaluation of the 1998 NSPC Program*. Final Report. Prepared for the California Board for Energy Efficiency and Southern California Edison Company. June 1999. In particular, the total incentives committed for 1998 dropped from $33.8 million to $24.2 million, estimated energy savings decreased from 231 GWh to 162 GWh, and the number of unique customers and EESPs increased somewhat. The principal reason for these differences is that the original analysis was based on data from Fall 1998, and since that time, a number of projects have been canceled. In addition, many Detailed Project Applications (DPA) forms had not been approved as of Fall 1998. It is not uncommon for estimated savings and other aspects of DPA applications to change somewhat between the submitted and approved DPA milestones.

[2] The data in this table is based on program tracking data provided by the two utilities in July 2000 and one utility in November 2000. Note that for the 1999 program year changes are still occurring with respect to project cancellations and project characteristics; therefore, the final population characteristics for the 1999 LNSPC program will differ from those presented in Table E-1, while those for the 1998 program year should be relatively stable.

Study, the net-to-gross estimate for the 1998 NSPC was 0.53. ***Our estimate of the net-to-gross ratio for the 1999 LNSPC is very similar at 0.51.*** As was found in the 1998 study, our net-to-gross estimate for self-sponsors is lower than that for EESP-sponsored customers at 0.42 and 0.57, respectively).[4] This continues to support the hypothesis that self-sponsors are more likely than EESP-sponsored customers to be free riders.

In the current Study, ***we also found that both program years may have a significant amount of participant spillover***; that is, the Program appears to be stimulating some participants to take additional actions beyond those captured in the Program. Although difficult to quantify, this effect could, if proven, boost the net-to-gross ratio by 5 to 20 percent depending on the extent of additional measure activity that actually occurs.

Based on the information presented above, we make the following observations with respect to the resource-acquisition objective of the Programs:

- ***The Programs have generated a large pool of potential gross energy savings as indicated by the 162 GWh and 262 GWh associated with funding commitments for the 1998 and 1999 Programs***, respectively.
- ***There appears to be a significant amount of savings from non-lighting projects***. At least three-quarters of incentives and 60 percent of savings are associated with non-lighting projects in both the 1998 and 1999 program years.
- ***Net resource acquisition is moderate*** based on our estimates of the net-to-gross ratios of 0.53 and 0.51 for the 1998 and 1999 program years, respectively. However, these figures do not quantify participant spillover, for which we found positive qualitative evidence.

We also developed an approximation of the amount of incremental energy performance contracting business generated via the 1999 LNSPC Program by combining several of the research results presented in the body of this report. We estimate that the net *performance contracting* business generated by the 1999 LNSPC represents approximately 15 percent[5] of the estimated annual performance contracting market in the state. Although more difficult to estimate, we believe that the total net program savings also represent about 20 percent of the total *annual energy-efficiency related savings* in the target market. With much more certainty, we can say that the ***current estimated gross and net savings*** of 1999 LNSPC Program ***represent 0.5 percent and 0.3 percent of the total annual consumption of customers over 500 kW*** in the three investor-owned utility territories.

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[3] Note that the net-to-gross ratio reported here is based only on free-ridership; that is, it does not include any adjustments for participant or non-participant spillover (thus, the net-to-gross ratio equals 1 minus the free-ridership rate).

[4] The corresponding figures for the 1998 program were 0.38 for self-sponsors and 0.64 for EESP-sponsored customers.

[5] This figure is similar to and consistent with the 10 percent figure we estimated for the 1998 NSPC program in our previous study. The current figure is higher partly because most of the performance contracting occurs in the large customer market and the large customer market is a subset of the total nonresidential market which was used as the basis for the 1998 estimate.

E.2.2 Summary of Market and Process Assessments

Based on the results of our first-year evaluation of the 1998 NSPC, we concluded that the overall weight of the evidence collected at that time indicated that the 1998 Program was generating few near-term market effects, had moderately high free-ridership, and suffered from a lack of broad EESP satisfaction with the M&V and other participation requirements. Several, but not all, of the second-year evaluation results are consistent with these first-year findings. Below, we present a summary of those current findings that are consistent with the 1998 NSPC evaluation results and those that differ from or are incremental to the 1998 results. We begin with the findings that are consistent with those presented in the first-year evaluation.

Findings Consistent with 1998 Evaluation Study

The key findings from the current Study that are consistent with those in the previous, first-year evaluation are that:

- ***The moderately high level of free ridership continues to limit both the resource acquisition and market transformation-related goals of the Program*** because the free-ridership tends to be inversely correlated with many of the hypothesized market effects.
- In both evaluation studies, ***most EESPs reported that the Programs had minimal effects on their business practices*** (with a few key exceptions).
- ***EESPs continue to be separated into two camps***: ***a small group*** of traditional ESCOs who ***supports the Program's requirements***, and ***a larger group*** that also includes ESCOs as well as contractors, engineering firms, ESPs, and other EESPS, that ***strongly criticizes the Program's requirements***.
- Roughly ***50 percent of the 1999 Program projects were from self-sponsoring customers*** who did most of the work themselves.
- The ***amount of performance contracting that occurs between customer and EESP participants continues to be limited*** to about 20 percent of in-program projects.
- Customers and, especially, ***EESPs consider the level of M&V required to be far beyond what the market requires*** to address current levels of performance uncertainty.

The fact that a number of the current findings are consistent with those in the previous study should not be surprising given that the 1999 LNSPC Program design had only minor changes as compared with the 1998 NSPC.[6]

[6] There are a number of potential reasons why the 1999 program requirements were fairly similar to the 1998 requirements (although there were some notable changes, which are summarized in Section 1 and Appendix A of this report). Possible reasons include: 1) the fact that the first-year evaluation results were not available until *after* the 1999 program plan had to be filed (in late 1998), 2) concern over the fact that the program had only been in operation for a year and, because of this, the first-year results may not have been representative of the program's longer term potential, 3) and actual and perceived regulatory resistance to making major changes in program rules.

Some stakeholders and policy-makers did have legitimate concerns that the first-year results may have been unrepresentative of the program effects because the measurements were taken so early in the life-cycle of what was, and still is, a new program strategy. As noted above, many of the key results for the second-year evaluation turned out to be very consistent with and strongly reinforced the original conclusions. There are, however, some notable new findings that were obtained during the second-year evaluation, several of which point to some positive program outcomes that should be built upon. These new findings are summarized below.

New Findings

A summary of some of the key new findings is presented below:

- Overall, ***customer participants in both program years reported that they were satisfied with the services provided from their EESPs*** and an overwhelming majority said they would, or had, recommended their EESP to other organizations or planned to use them again themselves.

  ⇒ Although ***only about one quarter of the customers' positive perception of EESPs appears to be attributable to the Program***, the overall high levels of satisfaction may indicate that the private sector (particularly, the ESCO industry) is more successful at achieving satisfaction than previously thought.

- ***Customers are also generally pleased with the measures they installed and plan to communicate measure benefits to others in their organization*** and, to a lesser extent, outside their organization. In addition, ***many customers plan to install additional measures*** and some attribute this to participation in the Program.

  ⇒ These findings support the hypothesis that positive experiences will lead to further actions and diffusion of efficiency-related innovation within and among organizations.

- ***Customers do report that they value M&V; however, they do so at modest levels***. These customers also report low levels of performance uncertainty for the savings associated with the projects they implemented in the Program. Customers also cite some benefit to the fact that EESPs are contracting with program administrators for their project savings.

- ***Customers report that participation in the Program did not have any significant effect on their organizational practices*** as they relate to energy-efficiency procurement or staff incentive policies.

- ***EESP participation is spread among a diverse set of firm types***, however, ***two EESPs captured 50 percent of the total EESP incentives in 1999***.

- ***Some EESPs were concerned that the end-use prices had decreased too significantly in 1999***, without any commensurate reduction in the costs of meeting participation requirements, especially for certain controls measures.

- ***EESPs*** that participated in both the 1998 NSPC and 1999 LNSPC ***generally reported that the participation process and program logistics had improved somewhat***, but still noted that further changes in program requirements were needed.
- Analysis of program tracking data shows that ***the elapsed time between major milestones***, such as submittal and approval of DPAs, ***decreased dramatically between 1998 and 1999*** (from an average of 152 days in 1998 to an average of 72 days in 1999).
- Overall, we conclude that ***there is weak evidence for most of the EESP-related market effects hypotheses and moderate evidence for the hypotheses associated with end users***.

E.3 RECOMMENDATIONS

We present in this subsection a discussion of our recommendations for the large nonresidential SPC Program based on the findings in the current study. ***It is important for readers to remember that the recommendations we are making in this study are based on the 1999 LNSPC Program, which is the primary basis of this evaluation***. Changes proposed and implemented in PY 2000 are not within the scope of this evaluation. This is important to recognize because the PY 1999 Program requirements were fairly similar to those for PY 1998, hence, many of our recommendations from the previous study remain relevant. At the same time, the program administrators have made and proposed several changes since PY 1999 that are consistent with several of our recommendations. Thus, ***readers should not assume that recommendations we make with respect to PY 1999 are not already being addressed by the program administrators*** (especially with respect to PY 2001).

E.3.1 Program-Related Recommendations

Our recommendations for further improving the LNSPC include the following:

- *Continue efforts to reduce free ridership.*
- *Reassess which, if any, specific EESP Changes the program should seek to induce.*
- *Continue to reassess the role of performance contracting and M&V.*
- *Continue efforts to reduce perceived and actual costs of program participation.*

Continue Efforts to Reduce Free Ridership

We believe that free ridership is a key factor limiting both end-user market effects and net energy savings acquisition. Although reducing free-ridership is not easy in practice, it should be a focus of program redesign so that net public benefits can be maximized. Success in reducing free ridership would likely result in an increase in market effects as well because many of the hypothesized market effects are more likely to occur when customers are induced to take new actions principally as a result of participation in the Program. Some specific suggestions on how free ridership might be reduced are provided in Section 2.4 of this report. Of course, despite best efforts, some free ridership is unavoidable in a public program with standardized, easily verifiable, participation requirements.

Reassess which, if any, Specific EESP Changes the Program Should Seek to Induce

The results of this evaluation show that EESPs report that the Program is having minimal changes on their business practices (with the exception of a handful of traditional ESCOs who report that the Program is increasing their volume of business and reinforcing their strength in M&V). We believe that the evidence to date shows that ***it is extremely risky to attempt to change the relative market share of different types of EESPs in a mature, dynamic market*** such as the one for energy-efficiency services for *large* nonresidential customers. There is no evidence to date that the firms with the largest market share in the Program are any more likely to succeed in the marketplace in ways that provide net, sustainable public benefits than firms that do not have large program-market shares (or interest in attaining them).

The key characteristic of the supply-side market for energy-efficiency services among large customers is that it is ***unconsolidated***. The ***private market is*** well aware of this issue and many investors are ***betting on different strategies for increasing their market share***. We do not believe that the winning approach or approaches can be predicted or should attempt to be "picked" by energy-efficiency policy makers and program planners. For this reason, we recommend close and critical examination of policy and program objectives that presuppose preferred EESP business models or strategies in the large nonresidential market.

Continue to Reassess the Role of Performance Contracting and M&V

Throughout the brief history of the large nonresidential SPC Program in California, there has been some debate among stakeholders, program designers, and policy makers on the purpose of the Program's measurement and verification requirements. For some, the primary purpose of the M&V requirements was to protect ratepayers from paying for savings that do not actually occur. Under this model, the M&V requirements and pay-for-performance aspect of the Program ensure that payment is made by the utility administrators only for measured savings. For others, the primary purpose of the M&V requirements was to stimulate the market for performance contracting between end users and EESPs. Related goals were to increase end-user appreciation of the value M&V results provide in reducing uncertainty over whether measure savings actually occur and to strengthen the private sector's ability to deliver effective M&V services.

Only a small handful of participating firms strongly support the current levels of M&V required by the 1998 and 1999 nonresidential SPC Programs in California. To the extent that program designers and regulatory policy makers believe that the M&V levels are set at optimal levels for the societal goals staked out for the Program, the fact that only a small handful of firms have adapted to and benefited from the program M&V requirements could be seen as an intended program success. Under this scenario, these firms could be considered early adopters of rigorous M&V who demonstrate that the Program-required levels of M&V provide substantial benefits to customers–thereby stimulating more end-user demand for M&V and interest among other service providers in meeting this demand. On the other hand, if the M&V levels are sub-optimal, which, for example, could occur because they are set at levels that the market will never accept, then the fact that only a small number of firms benefit from the stringent M&V may be a

perverse outcome that rewards firms for activities that are ultimately unsustainable. To help assess this question, we offer the following observations on the current market for performance-related efficiency services:

- The trend in the industry appears to be away from traditional energy savings performance contracting, based on updated interviews with EESPs conducted for the current study. The traditional performance contracting approach is only used frequently with government, hospitals, and other institutional customers.
- Under the increasingly popular guaranteed savings approach, the level of savings guaranteed for the customer is typically based upon a very conservative estimate made by the EESP. Under this approach, it is in the best interests of both the EESP and the customer to ensure that savings are readily evident from the project. Measurement approaches used to document the guaranteed level of savings are relatively straightforward and short term.

Given the market trend toward a guaranteed savings approach, if program projects are cost effective and attractive to the customer and if all parties are confident that the savings estimate is in fact conservative, then it may be appropriate to significantly reduce program M&V requirements (at least, for some measures). We note that the program administrators developed reduced M&V requirements for lighting measures late in the 2000 program year and have proposed a calculated savings option that would not require field monitoring for selected measures or small project sizes for the 2001 program year. We strongly support testing of these new approaches in 2001.

Continue Efforts to Reduce Perceived and Actual Costs of Participation

A consistent criticism of the 1998 NSPC and 1999 LNSPC heard from both participating and non-participating EESPs throughout the first two years of evaluation was that the Program was too complex, burdensome, and costly. These EESPs perceive the costs of participation to be high both in terms of the direct costs associated with meeting the Program's paperwork and M&V requirements and the indirect costs associated with having to give up control of the timing of project milestones (particularly, installation). ***Most interviewees appreciated that changes were made for the 1999 LNSPC but stated that the changes did not go far enough***. We recognize that a balance must be struck between facilitating participation and maintaining adequate levels of accountability. Utilities have received much of the same feedback directly from program participants and, as a result, made changes to reduce participation costs for PY 2000. In addition, they have proposed several additional process-related changes for PY 2001.

E.3.2 Recommendations for Further Research

To continue building upon the body of knowledge developed through direct program experience with the large nonresidential SPC Program model and associated market assessment and evaluation studies, we recommend additional research in the following areas:

- Conduct a process evaluation and market effects assessment of PY 2000 and PY 2001 program participants. These efforts should focus on areas of program changes.
- Conduct an analysis of first-year M&V results for the 1998 NSPC once a sufficient portion of first-year reports are complete (only a handful of first-year M&V reports have been completed to date). Because M&V has been a critical aspect of the Program, it will be important to systematically analyze the first-year results as they become available.
- Analyze which factors, if any, are useful and reliable predictors of free-ridership. Developing a better understanding of the factors that underlie free ridership may help to illuminate approaches to reducing it.
- Conduct more in-depth analyses of the specific types of measures implemented in both the 1998 NSPC and 1999 LNSPC Program years. This effort should document which specific types of measures were implemented and assess how well program measures align with market potential.

1 INTRODUCTION

In this report, we present results from an ongoing, comprehensive evaluation of California's 1998 Nonresidential Standard Performance Contract Program (1998 NSPC) and 1999 Large Nonresidential Standard Performance Program (1999 LNSPC). This section provides a brief introduction to the study and content of the report.

1.1 EVALUATION CONTEXT, OBJECTIVES, AND SCOPE

1.1.1 Program and Evaluation Context

There are several important policy-related backdrops to this evaluation. First and foremost, it is important to mention that the public policy objectives and strategies associated with intervening in energy-efficiency markets have been in a state of dynamic change over the past four years. To this end, the following provides a brief summary of the high-level changes in California's energy efficiency program policies:

1. In the late 1980s, the California Public Utilities Commission (CPUC) chose to rely on the regulated utilities as the primary agent for acquiring least cost demand-side resource options in the context of the Integrated Resource Planning (IRP) set of regulations that defined this era (see CPUC Policy Rules that were in effect during 1990-1997).
2. Within this context, California's regulated utilities administered and implemented both information and rebate programs. Utility shareholder incentives were often tied to the measured energy savings obtained from rebate programs, which led to an evaluation focus on measuring reductions in energy usage.
3. In the early 1990s, the CPUC also accepted and supported the notion that it wished to provide support for non-utility providers of energy-efficiency products and services by way of Demand Side Management (DSM) bidding programs.
4. As part of a broader restructuring process aimed at enabling a more competitive energy industry, the CPUC and the legislature changed the objectives and means of continued intervention in energy-efficiency markets during the period 1996 to 1999. These changes included:
   (a) the abandonment of IRP and utility-based, least-cost planning;
   (b) a move toward independent administration of energy-efficiency programs and creation of the California Board for Energy Efficiency (CBEE) to advise the CPUC on energy-efficiency programs;
   (c) the explicit elevation of a competitive, energy-efficiency industry as an objective for achieving energy-efficiency goals during this industry transition period; and
   (d) the explicit support for the NSPC Program as an important program design choice for supporting the development of a competitive, energy-efficiency industry of products and services providers.

5. As a result of several legal and political factors, the process of moving to non-utility program administration was eventually halted, and as a result, the CBEE was disbanded in early 2000.
6. Regulatory energy-efficiency policy was refocused on acquiring immediate peak demand savings as a result of statewide supply shortages and increased peak power prices over the summer of 2000.

The NSPC Program was developed in late 1997 within the context outlined above. The Program contains elements associated with both resource acquisition *and* market transformation program strategies. This is because when it was developed, policy objectives required that the overall portfolio of 1998 programs be cost-effective from a societal perspective *and* that it incorporate market transformation strategies. Since the NSPC was one of the largest single programs in the 1998 portfolio, it was important that it provide a cost-effective means of capturing energy savings. At the same time, the Program was expected to show some benefits associated with its market transformation-related strategies. In its brief history, the Program has suffered somewhat from a lack of consensus among stakeholders on the relative importance of its resource acquisition and market transformation-related design elements.

Perhaps the two elements of the nonresidential SPC Programs that share the broadest support are the general notions that the Programs should provide cost-effective net-energy savings (and, increasingly, peak demand reductions), and that it produce a net increase in the amount of sustainable business that is conducted between third-party energy-efficiency service providers (EESPs) and end users.

Although the 1998 NSPC and 1999 LNSPC Programs include both resource-acquisition and market-transformation design intentions, this evaluation focuses somewhat more on the latter than on the former, although many aspects of the research apply equally to both elements. Under the objectives of this evaluation, the bulk of our resources were focused on process evaluation, market assessment, and analysis of potential near-term market effects.

It is important to note that the 1998 NSPC and 1999 LNSPC Program designs do not require the type of impact evaluation study that was typically conducted for utility programs for years prior to 1998. This is because the project-specific measurement and verification (M&V) requirements of program participation ultimately produce an ex post measurement of energy savings for every program contract.[1] Unfortunately, based on the program tracking data we have received from the utilities (in July 2000) and our interviews with 1998 end user participants, we found that only a handful of 1998 participants have completed their first-year M&V reports (and none of the 1999 participants). Thus, we have no comprehensive information from the M&V component of the 1998 and 1999 Programs to present in this report. This information will have to be incorporated into future evaluations as it becomes available.

[1] These M&V-based savings estimates are not available, however, until one and two years after the installation of each of the projects (see Appendix A for project milestone details).

1.1.2 Objectives and Scope

The main objectives of the evaluation, as defined in the original study request-for-proposal, are listed below:

1. **General Program Evaluation.** This includes a broad statewide process, market, and tracking data evaluation of the 1998 NSPC and the 1999 LNSPC Programs focused on: (a) characterizing how the Program actually worked; (b) further testing and refining the hypotheses regarding the potential effects of the programs; and (c) reviewing and integrating the results of utility tracking, monitoring and measurement activities. A free-ridership analysis of the 1999 LNSPC Program also is included in the current report. The free-ridership results are presented in Sections 2 and 4 of this report.
2. **Follow-up on the 1998 NSPC Program.** This element focuses on interviewing customers and EESPs that participated in the 1998 NSPC Program to provide a follow-up on the first-year program evaluation conducted in 1999. Since most projects were still in development when the previous evaluation was completed, the follow-up provides additional information on the process and market impacts of the 1998 NSPC Program.
3. **Baseline Survey.** A baseline survey, targeted to customers with over 500 kW in demand, provides an assessment of the current market for energy-efficiency products and services purchased by and for large non-residential customers and supplements baseline data collected in the previous study.

Note that the 1999 Small Business SPC Program is not addressed in this study. Evaluation of the Small Business SPC Program is included in the 1999 Statewide Small/Medium Nonresidential MA&E Study (XENERGY, 2000).

1.2 SUMMARY OF APPROACH AND STUDY TIMELINE

There were seven major areas of primary research conducted for this study:

- Interviews with 41 customer participants in the 1999 LNSPC Program
- Re-interviews with 29 participants in the 1998 NSPC Program
- Customer baseline comparison surveys with 700 end users within and outside California
- Interviews with 24 EESP participants (covering both 1998 and 1999 program years)
- Interviews with utility staff
- Integration and analysis of utility program tracking data
- Integration of results into key project findings.

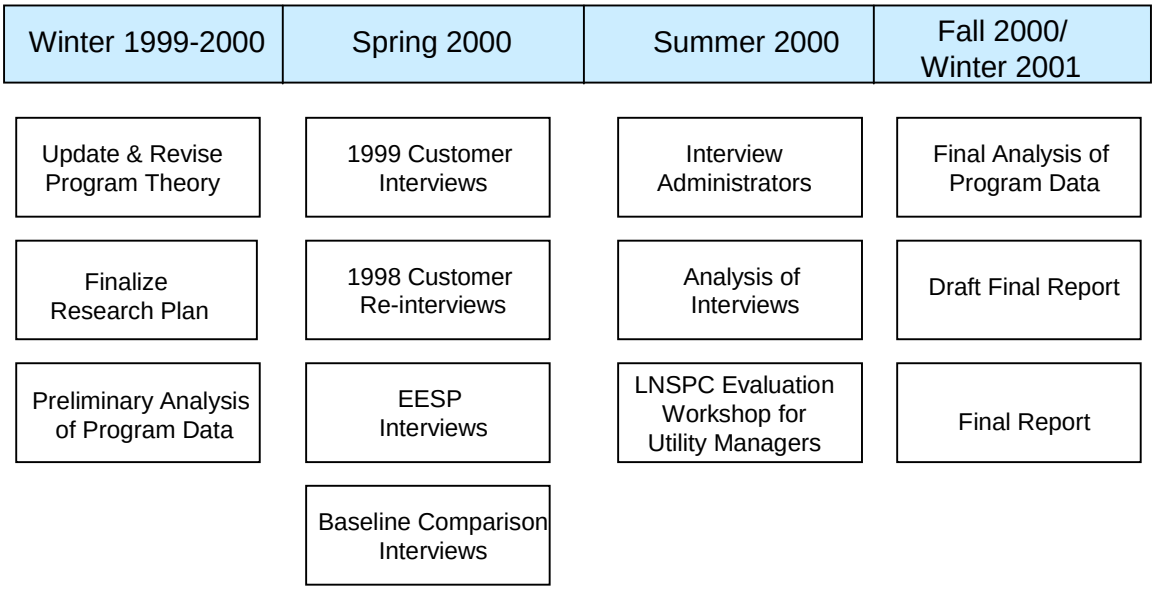
Table 1-1 presents more detail on the types of interviews completed for this evaluation.

Table 1-1
Summary of Data Collection Activities for the 1999 LNSPC Study

Market Actor	Survey Approach	Sampling Approach	Number of Interviews Completed
1999 LNSPC Customer Participants	All in-depth (conducted by professional staff)	Stratified by accepted incentives and attempted census for Top 10 customers. Assured proportional coverage by other segments (e.g., utility service territory and business type).	41
1998 LNSPC Customer Participants	All in-depth (conducted by professional staff)	Attempted a census of 40 participants interviewed for the 1998 NSPC Program evaluation.	29
Customer Comparison Groups In CA and Out-of-State	Structured telephone surveys	Seven major segments and 3 size groups.	349 in-state and 350 out-of-state
EESPs	All in-depth (conducted by professional staff)	Segment between 1998 participants and 1999 participants.	24
Utility Staff and Contractors	All in-depth (conducted by professional staff)	Conducted interviews with key utility staff.	2 of 3 utilities interviewed

A summary of when the key elements of our project occurred over the course of the study is shown in Figure 1-1.

Figure 1-1
1999 LNSPC Evaluation Study Timeline



1.3 SUMMARY OF THE 1998 NSPC AND 1999 LNSPC PROGRAM REQUIREMENTS

The 1998 NSPC and 1999 LNSPC Programs were administered by Pacific Gas & Electric Company (PG&E), Southern California Edison Company (SCE), and San Diego Gas & Electric Company (SDG&E).

Under the 1998 NSPC[2] Program and the 1999 LNSPC Program, the program administrators offered fixed-price incentives to EESPs[3] for measured kWh energy savings achieved by the installation of energy-efficiency measures. The fixed price per kWh, performance measurement protocols, payment terms, and all other operating rules of the programs were specified in a standard contract. The role of the program administrator was to manage the Programs in a fair and nondiscriminatory manner, promote the programs, educate customers and EESPs on the programs, and enter into contracts with applicants to pay for measured energy savings.

The Programs were both "pay-for-performance" programs. With traditional utility rebate programs, the utility pays an incentive directly to its customer based on an estimate of annual savings from a project. However, under these pay-for-performance SPC programs, the utility program administrator pays a variable incentive amount to a third-party EESP or to a customer acting without a third-party EESP based on measured energy savings.

Because of the pay-for-performance nature of the nonresidential SPC Programs, a key requirement for project eligibility is that the savings resulting from the project must be measured in accordance with a project-specific M&V plan. The M&V plan must be prepared by the EESP in accordance with the program procedures manual and must be mutually agreed upon by the Program Administrator and the EESP prior to beginning any work on project installation.

For the 1998 and 1999 Programs, the amount paid for savings from heating, ventilation, and air conditioning (HVAC) measures is approximately three times the amount paid for savings from lighting measures. "Other" measures are paid at about one-and-a-half times the rate paid for lighting. The nonresidential SPC Programs are also different from traditional utility rebate programs in that the total incentive is paid over a two-year performance period. During the

[2] In 1998, the Program's first year, it was called the "Nonresidential Standard Performance Contract Program." In 1999, the Program was separated into two separate programs based on customer size. The 1999 LNSPC was designed to serve end users with peak demand of 500 kW or more, while the 1999 Small Business SPC Program was designed to serve customers of less than 500 kW peak demand. In this report, we focus on the 1999 LNSPC and its predecessor the 1998 NSPC. For an evaluation of the Small Business SPC Program refer to XENERGY, Inc., *1999 State-Level Small/Medium Nonresidential MA&E Study, Final* Report, December 2000.

[3] In the context of the program, an EESP can be any company, organization or individual that contracts with the administrator to receive payment for measured energy savings resulting from an energy efficiency project. In the 1998 NSPC Program, a customer could act as an EESP by contracting directly with their utility and installing and measuring savings from an energy efficiency project at their own facility. Within the context of this paper, however, we refer separately to self-sponsoring customers and EESPs. Our references to EESPs in the remainder of this report refer to third-party firms, not customers.

performance period, the EESP must measure and verify the energy savings actually achieved using a mutually agreed upon measurement protocol.

However, while the nonresidential SPC Programs require the EESP to have a standard performance contract with the program administrator, the program rules do not require a third-party EESP to use such a contract with its customers. Thus, an EESP may decide to use other kinds of contracts with their customers that may not involve performance verification.[4]

To qualify for either the 1998 NSPC or 1999 LNSPC Programs, a project must produce a minimum of 200,000 kWh or 20,000 therms of savings. Two or more projects may be aggregated to meet this requirement. Aggregated projects must employ the same energy-efficiency measures and be installed at similar sites in order to make measurement and verification of multiple projects feasible. The Programs are open to almost any equipment replacement or retrofit project for which the savings can be measured and verified. The project must have a useful life of greater than three years. Eligible energy-efficiency technologies, or "measures" include, but are not limited to, replacement of standard fluorescent lighting with high-efficiency fluorescent lighting, installation of variable-speed drives on electric motors, installation of lighting controls to reduce lighting operating hours, and replacement of standard-efficiency air conditioning equipment with high efficiency equipment. Projects that are not eligible include any power generation project, co-generation, fuel substitution or fuel switching projects, new construction projects, and any repair or maintenance project.

There are a number of important milestones that must be completed as part of the project approval process. Readers unfamiliar with these milestones and other implementation details should review the program web sites for more information (see previous footnote).

1.3.1 Differences between 1998 and 1999 Programs

There are some important differences in the program requirements for the 1998 NSPC and 1999 LNSPC Programs:

- The utilities increased the standardization and consistency of procedure manuals, SPC agreements, and forms.
- M&V protocols for select measures were simplified (e.g., for lighting and motor efficiency projects).
- Some end-use measures were reclassified into different incentive rate categories (e.g., variable-speed drives (VSDs) and energy management system (EMS) upgrades for HVAC systems were reclassified into Motors & Other).

[4] Additional programmatic details on the California nonresidential SPC Programs can be found at each utility's web site; see www.scespc.com, www.pge.com/003_save_energy/003b_bus/003b1f_std_perf_con.shtml, and www.sdge.com/business/services/standard/contract.html.

- In 1998, project sponsors were limited to a maximum of 30 percent of the total incentive funding; for the 1999 LNSPC Program, this was reduced to 25 percent of the SPC incentive budget within the affiliated Utility Administrator's service territory.
- In 1998, customers were limited to a maximum of 15 percent of the total incentive funding by site; for 1999, this was changed to a maximum of $400,000 per customer site.
- In 1999, caps were added to limit state government agencies and corporate parent companies to maximum of $1.5 million, and all state and federal governments were limited to a maximum of $6 million total in SPC incentives statewide.
- In 1998, $37 million in incentives were available; in 1999, $44.1 million was available.

The per-unit incentive levels for the 1998 and 1999 Programs are shown in Table 1-2.

Table 1-2
Program Incentive Levels by Measure Type and Year

Measure Type	Price/kWh	
	1998	1999
Lighting	$0.075	$0.050
HVAC&R	$0.210	$0.165
Motors & Other	$0.110	$0.080

1.4 GUIDE TO FINAL REPORT

Descriptions of each of the various elements included in this final report are provided below. These descriptions are organized as they appear in the report, by section and appendix.

Volume I: Main Body

- **Section E: Executive Summary**

  The Executive Summary provides a short summary of the evaluation results.

- **Section 1: Introduction**

  The introduction includes a discussion of the overall objectives and scope of the project, including task tracking tables and a final report guide.

- **Section 2: Key Findings**

  This section provides an update of the program theory as well as a more in-depth summary of the evaluation results than is provided in the Executive Summary.

- **Section 3: Summary of Program Tracking Data**

  Section 3 includes a summary of our analysis of the utility program tracking data. The data summary in this section includes a summary of Program activity for both the 1998 NSPC and 1999 LNSPC Program years as of July 2000, including: Program applicant composition, various subgroup characteristics, and statewide participation by end-user segments.

  Because changes are still occurring in the Program with respect to project cancellations, new approvals, and changes in project characteristics, the final population characteristics for the Program will not match exactly with the results presented here.

- **Section 4: Results from Participating Customers**

  In this section, we present responses to a set of structured interviews we conducted with a representative sample of customers that are participating in the 1999 LNSPC Program as well as follow-up interviews with participants in the 1998 NSPC Program. Topics covered in the interviews include: general characteristics of the participants, decision-making procedures, experience with performance contracting, experience with third-party firms, net-to-gross characteristics, and comments on program process issues.

- **Section 5: Results from EESP Interviews**

  In this section, we present responses to structured interviews conducted with participant EESPs in both the 1998 NSPC and the 1999 LNSPC Program Years. Topics covered in the interviews include: General characteristics of the EESPs, marketing procedures and promotion of performance contracting, and comments on program process issues.

- **Section 6: Results from End User Baseline**

  This section includes the results from interviews conducted with a sample of non-residential establishments in California and throughout the country. The purpose of the interviews was to obtain baseline information on topics relating to a variety of establishment and energy efficiency characteristics, behaviors, and attitudes.

- **Section 7: List of Sources**

Volume II: Appendices A through C

- **Appendix A: 1999 LNSPC Program Description**

  This appendix provides a brief description of the 1999 LNSPC Program and how it differs from the 1998 NSPC Program.

- **Appendix B: Review of Sources for Program Theory Development**

  Included in this appendix is a listing of sources reviewed during our program theory development. Two primary sources of information were used for initial theories of the market effects of the LNSPC Program: written sources, in the form of both published

literature and informal memoranda and white papers; and verbal sources, in the form of initial interviews with program designers and administrators.

- **Appendix C: Survey Instruments**

  This appendix contains full text versions of all survey instruments used in this study:

  ⇒ 1999 LNSPC End-User Participant Survey

  ⇒ 1998 NSPC Participant Re-Interview

  ⇒ Participant EESP Survey

  ⇒ Baseline Survey.

2 KEY FINDINGS

This section summarizes the key findings and results from this study and provides our conclusions and recommendations. It presents information based on analyses of program tracking data, interviews conducted with 1998 NSPC and 1999 LNSPC customer and energy-efficiency service provider (EESP) participants, a baseline survey of large nonresidential end users, interviews with utility program managers, and other sources.

2.1 SUMMARY OF SECOND-YEAR FINDINGS

In this subsection we present a summary of key second-year findings. First, we present a summary of the energy savings and basic participation trends based on our analysis of the utilities' program tracking data. Second, we present a summary of findings associated with the process and market assessment aspects of the study.

2.1.1 Assessment of Net Energy-Savings and Tracking Data

As noted in Section 1, it is not within the scope of this evaluation to conduct an independent assessment of the gross energy savings of the 1998 NSPC and the 1999 LNSPC programs because gross savings are verified by sponsors on a site-by-site basis as part of the program requirements. What is within the scope of this evaluation is to develop an integrated analysis of program accomplishments using the three utility program-tracking databases. In addition, it is also within the scope of this evaluation to develop an estimate of free-ridership for the 1999 LNSPC Program (free-ridership for the 1998 NSPC was developed as part of the first-year 1998 NSPC evaluation).

Separate Program tracking databases are maintained by each of the Program Administrators. Extracts from each of the three Program tracking databases must be combined to allow for a summary of the Program activity at an aggregate, statewide level. Each utility database exists in a different format and is updated according to different protocols. As a result, we developed a standardized program data specification and requested each utility to map their data into this standardized format. This process worked reasonably well, although some differences in reporting remain among the utilities. The analyses of utility tracking data presented in this report are based on data received from two of the utilities in July 2000, and the third in December 2000. Detailed results are presented in Section 3, while in Table 2-1 we present a summary of some of the key, statewide results. Note that for the 1999 program year, changes are still occurring with respect to project cancellations and project characteristics. Therefore, the final population characteristics for the 1999 LNSPC program will differ from those presented in Table 2-1, while those for the 1998 program year should be relatively stable.

As shown in Table 2-1, the total number of customers and applications has increased between 1998 and 1999. The number of third-party EESPs in the Program and the amount of incentives committed remain about the same. Incentive commitments for SCE are similar for the two years while those for PG&E increased by about half while those for SDG&E decreased by about half.

Expected savings are higher for 1999 for the same level of incentives, reflecting decreases in unit incentive amounts. The average amount paid per kWh decreased by over one-third between 1998 and 1999. Note that much of this difference is explained by the fact that the posted incentive price by end use decreased by 25 percent on average across the three end uses between 1998 and 1999 (see Table 1-2 in the Introduction section of this report). The remainder of the difference is likely associated with a shift in the relative distribution of Lighting, HVAC/R, and Other measures in the two program years.

Table 2-1
Summary of Key Program Activity Indicators to Date

Activity Level	1998	1999
Total unique customers	90	122
Total number of applications	139	179
Total unique third-party Energy-Efficiency Service Providers	33	33
Total incentives funds committed	$24.2 million	$24.2 million
Total incentives funds committed - PG&E	$6.3	$9.4
Total incentives funds committed - SCE	$10.3	$11.5
Total incentives funds committed - SDG&E	$7.5	$3.3
Percent of Incentives to EESP-Sponsored Applications	58%	50%
Total Savings from applications with active BPAs	162 GWh	262 GWh
Average Incentives per kWh	$0.150	$0.093

Note that all of the data shown in Table 2-1 for the 1998 program year are different from the values reported in our 1998 first-year evaluation (XENERGY, 1999). In particular, the total incentives committed dropped from $33.8 million to $24.2 million, estimated energy savings decreased from 231 GWh to 162 GWh, and the numbers of unique customers and EESPs decreased as well. The 1998 NSPC was fully subscribed as of fall 1998. We have not conducted a formal analysis aimed at decomposing the reasons for the differences in the original versus current 1998 figures; however, there are several possible explanations.

The principal explanation for the difference in the 1998 figures from those provided in the previous report is that the original analysis was based on early program data from Fall 1998. There are several implications of this. First, in fall 1998, most applications were still in their Basic Program Application (BPA) stage. As a result, savings may have been revised during the BPA process. Second, a number of projects approved by fall 1998 may have subsequently been canceled. Although the 1998 program year had a waiting list as of Fall 1998, it likely that many of these applicants decided to pursue their projects through the 1999 program year. Thus, as 1998 projects canceled during 1999, the total amount of approved incentives dropped below the total available budget. Third, in the current project we requested that each utility provide us with their program tracking data in a standardized format in which each field was clearly defined. This standard was not yet in effect for the original data received in fall 1998, thus, some differences may be due to inconsistencies in definitions.

As a result of detailed interviews conducted with participating end users, estimates of the net-to-gross ratios for the both program years were developed. Note that the net-to-gross ratios reported here are based only on free-ridership; that is, it does not include any adjustments for participant or non-participant spillover (thus, the net-to-gross ratio equals 1 minus the free-ridership rate). As previously reported (see XENERGY 1999), the net-to-gross estimate for the 1998 NSPC was 0.53. Our estimate of the net-to-gross ratio for the 1999 LNSPC is very similar at 0.51[1] (as was found in the 1998 study, our estimate for self-sponsors is lower than that for EESP-sponsored customers at 0.42 and 0.57, respectively).[2] Overall, estimates for both years indicate that slightly less than half of the projects associated with the programs were likely to have occurred anyway (i.e., without the program intervention). We also found, however, that both program years may have a significant amount of participant spillover; that is, the program appears to be stimulating some participants to take additional actions beyond those captured in the program. Although difficult to quantify, this effect could, if proven, boost the net-to-gross ratio by 5 to 20 percent depending on the extent of additional measure activity that actually occurs.

Based on the information presented above, we make the following observations with respect to the resource-acquisition objective of the programs:

- ***The programs have generated a large pool of potential gross energy savings as indicated by the 162 GWh and 262 GWh associated with funding commitments for the 1998 and 1999 programs***, respectively. Demand for participation in the 1998 Program was extremely strong as indicated by initial full subscription of funds and waiting lists; however, the final results indicate that some of these projects ultimately dropped out or rolled into the 1999 program. Demand for the program in 1999 varied significantly by utility. SCE accounted for 48 percent of reserved incentives in 1999, while PG&E accounted for 26 percent and SDG&E 31 percent. ***Although only about 55 percent of 1999 LNSPC available incentives were subscribed, total savings currently exceed those from 1998***, although based on our interviews, we have reason to believe that some large 1999 projects may still drop out or roll over to PY 2000.
- There appears to be significant amount of savings from non-lighting projects. Approximately three-quarters of incentives and 60 percent of savings are associated with non-lighting projects in both the 1998 and 1999 program years.
- Net resource acquisition is likely to be moderate based on our estimates of the net-to-gross ratios of 0.53 and 0.51 for the 1998 and 1999 program years, respectively. However, these figures do not quantify participant spillover, for which we found positive qualitative evidence, which would then increase the net resource acquisition.

[1] Note that this estimate is weighted by kWh savings, while the 1998 estimate was weighted by incentives. However, weighting the net-to-gross by incentives versus kWh does not appreciably change the 1999 figure.

[2] The corresponding figures for the 1998 program were 0.38 for self-sponsors and 0.64 for EESP-sponsored customers).

Figures 2-1 presents estimated savings in GWh by end use category. GWh savings from HVAC/R measures remained similar in both years, but savings went up significantly in all other categories, including HVAC/R and Other measures resulting in therm savings from the 1998 to 1999 program year. Further detail on savings and incentives by measure is provided in Section 3 of this report.

Figure 2-1
End Use Category Breakdown of GWh by Year

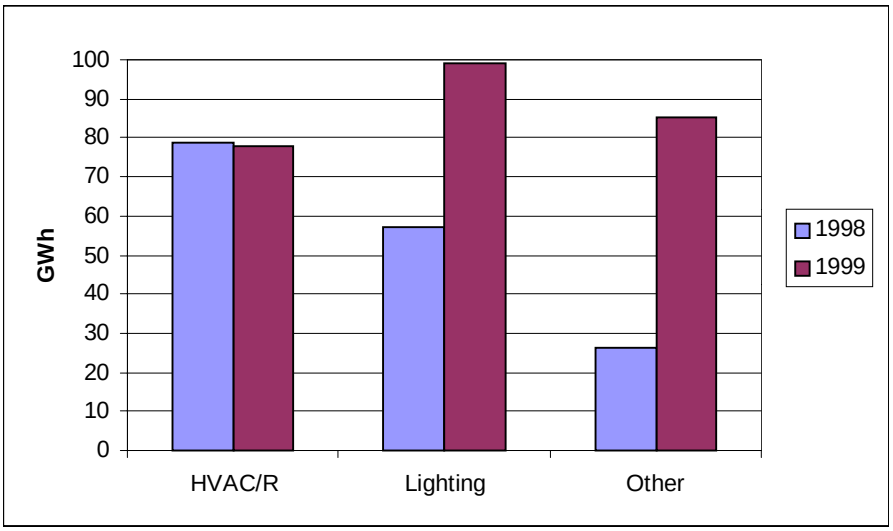
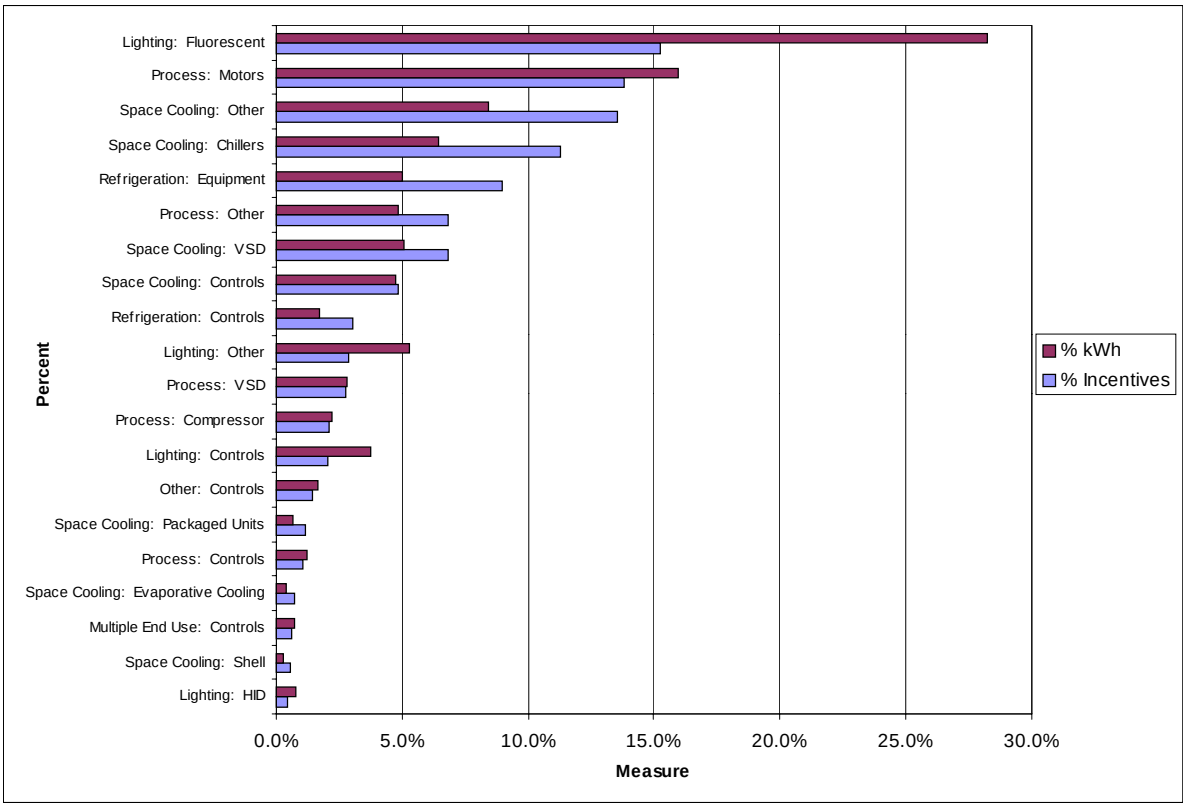


Figure 2-2 breaks down the incentives and energy savings by end use. As can be seen, ratios of incentives to kWh vary dramatically by type of end use. Indoor fluorescent lighting measures and high efficiency motors for process applications account for the highest percentages of both incentives and energy savings.

Lastly, an approximation of the amount of incremental energy performance contracting business generated via the 1999 LNSPC Program can be made by combining several of the research results presented in the body of this report. In Section 6 of this report, we estimate the annual baseline market for performance contracting among customers larger than 500 kW in California to be roughly 209 GWh. Multiplying the net-to-gross ratio for EESP-sponsored projects of 0.57 by the 262 GWh program savings in Table 2-1 produces an estimate of net program savings of 149 GWh. However, also as shown in Table 2-1, third-party EESP sponsors accounted for about 50 percent of the Program incentives applied for, of which, approximately 43 percent of the contracts with end users were performance contracts (see Section 4). Thus, the net performance contracting business generated by the Program can be estimated as: 149 GWh x 0.5 (fraction of EESP-sponsored projects) x 0.43 (fraction of EESP-sponsored projects using performance contracts with end users) = 32 GWh. This figure represents approximately 15 percent of the estimated annual performance contracting market (32 GWh/209 GWh). Although more difficult to estimate, we believe that the total net program savings of 149 GWh may also represent about

Figure 2-2
Percent of Incentives and kWh by End Use



20 percent of the total annual energy-efficiency related savings in the target market. With much more certainty, we can say that the current estimated gross and net savings of 1999 LNSPC program represent 0.5 percent and 0.3 percent of the total annual consumption of customers over 500 kW in the three investor-owned utility territories (which is roughly 47,800 GWh per year).

2.1.2 Summary of Market and Process Assessments

Based on the results of our first-year evaluation of the 1998 NSPC, we concluded that the overall weight of the evidence collected at that time indicated that the 1998 program was generating few near-term market effects, had moderately high free-ridership, and suffered from a lack of broad EESP satisfaction with the measurement and verification (M&V) and other participation requirements. Several, but not all, of the second-year evaluation results are consistent with these first-year findings. Below we present a summary of those current findings that are consistent with the 1998 NSPC evaluation results and those that differ from or are incremental to the 1998 results. We begin with the findings that are consistent with those presented in the first-year evaluation.

Findings Consistent with 1998 Evaluation Study

The key findings from the current Study that are consistent with those in the previous, first-year evaluation are that:

- The ***estimated net-to-gross ratio*** (without quantification of spillover, i.e., 1 - free ridership) ***for the 1999 LNSPC is strikingly similar to the estimate for the 1998 NSPC***, 0.51 versus 0.53, respectively. In our opinion, this moderately high level of free ridership continues to limit both the resource acquisition and market transformation-related goals of the program because the free-ridership tends to be inversely correlated with many of the hypothesized market effects (see Section 2.3 below).
- In both evaluation studies, ***most EESPs reported that the programs had minimal effects on their business practices*** (with a few key exceptions noted in the following subsection).
- ***EESPs continue to be separated into two camps***: ***a small group*** of traditional ESCOs who ***supports the program's requirements***, especially the M&V; and ***a larger group*** that also includes ESCOs as well as contractors, engineering firms, ESPs, and other EESPS, that ***strongly criticizes the programs'*** M&V and paperwork ***requirements***.
- Consistent with the 1998 results, roughly ***half of the 1999 program projects were from self-sponsoring customers*** who did most of the work, including M&V themselves; thus limiting the EESP-related program benefits.
- Partially related to the point above, the ***amount of performance contracting that occurs between customer and EESP participants continues to be limited*** to about 20 percent of in-program projects (roughly 40 percent of EESP sponsored projects, which are about half the total).
- Customers and, especially, ***EESPs consider the level of M&V required to be far beyond what the market requires*** to address current levels of performance uncertainty among the participating customer population (generally, the larger more sophisticated customers with respect to energy-efficiency orientation).

All of the results highlighted above, and several others, are consistent with our first-year evaluation, which recommended significant changes to improve both the net energy savings and market effects attributable to the program (updated recommendations from the current Study are provided in Section 2.4). The fact that a number of the current findings are consistent with those in the previous study should not be surprising, however, given that the 1999 LNSPC program design had only minor changes as compared with the 1998 NSPC.[3]

Some stakeholders and policy-makers did have legitimate concerns that the first-year results may have been unrepresentative of the program effects because the measurements were taken so early in the life cycle of what was, and still is, a new program strategy. As noted above, many of the

[3] There are a number of potential reasons why the 1999 program requirements were fairly similar to the 1998 requirements (although there were some notable changes, which are summarized in Section 1 and Appendix A of this report). Possible reasons include: 1) the fact that the first-year evaluation results were not available until *after* the 1999 program plan had to be filed (in late 1998), 2) concern over the fact that the program had only been in operation for a year and the first-year results may not have been representative of the program's longer term potential, 3) and actual and perceived regulatory resistance to making major changes in program rules.

key results for the second-year evaluation turned out to be very consistent with and strongly reinforce the original conclusions. There are, however, some notable new findings that were obtained during the second-year evaluation, several of which point to some positive program outcomes that should be built upon. These are discussed below.

New Findings

There are a number of new findings in the current Study that came about through the benefit of having a second year of program participants to interview and through the process of re-interviewing participants in the 1998 NSPC. Since more time had elapsed between the interviews we conducted and the end of the program year in the current Study than in the first-year study, many end user participants had had the opportunity to go through more program milestones and gain greater experience working with their EESPs. A summary of some of the key new findings is presented below. Additional results are presented in Section 2.2 and Sections 4 through 6 of this report.

- Overall, ***customer participants in both program years reported that they were satisfied with the services provided from their EESPs,*** and an overwhelming majority said they would, or had, recommended their EESP to other organizations or planned to use them again themselves.

  ⇒ Although ***only about one quarter of the positive perception of EESPs appears to be attributable to the program*** (most customers reported that their general opinion of EESPs had not changed), the overall high levels of satisfaction may indicate that the industry is more successful at achieving satisfaction than previously thought.

- ***Customers are also generally pleased with the measures they installed and plan to communicate measure benefits to others in their organization*** and, to a lesser extent, outside their organization. In addition, ***many customers plan to install additional measures*** and some attribute this to participation in the program.

  ⇒ These findings support the hypothesis that positive experiences will lead to further actions and diffusion of efficiency-related innovation within and among organizations.

- ***Customers do report that they value M&V; however, they do so at modest levels*** that are consistent with relatively low levels of performance uncertainty they associate with the specific projects they installed within the programs. Customers also cite some benefit to the fact that EESPs are contracting with administrators for their project savings.

  ⇒ Thus, modest levels of M&V coupled with the "endorsement effect" of the EESP-administrator contract can add value.

- ***Customers report that participation in the program did not have any significant effect on their organizational practices*** as they relate to energy-efficiency procurement or staff incentive policies.

- ***EESP participation is still spread among a diverse set of firm types***, however, ***two EESPs captured 51 percent of the total EESP incentives in 1999*** (versus 35 percent for the top two firms in 1998).
- ***Some EESPs were concerned that the end-use prices had decreased too significantly in 1999***, without any commensurate reduction in the costs of meeting participation requirements, especially for certain controls measures. One such EESP reported that they might cancel their 1999 project (one of the largest in the program) as a result because the project no longer met the customer's payback criteria.
- ***EESPs that participated in both the 1998 NSPC and 1999 LNSPC generally reported that the participation process and program logistics had improved somewhat***, but still noted that further changes in program requirements were needed.
- Analysis of program tracking data shows that ***the elapsed time between major milestones***, such as submittal and approval of DPAs, ***decreased dramatically between 1998 and 1999*** (from an average of 152 days in 1998 to an average of 73 days in 1999).
- Overall, we conclude that ***there is weak evidence for most of the EESP-related market effects hypotheses and moderate evidence for the hypotheses associated with end users*** (see Section 2.3 for a complete summary of the updated market effects analysis).

2.2 SUMMARIES OF SECOND-YEAR INTERVIEW RESULTS

This subsection presents more detailed summaries of selected results obtained from our interviews with program participants and non-participants. Complete results are presented in Sections 4 through 6 of this report.

2.2.1 Participant Customer Results

In this section, we present results from a set of structured interviews conducted with a representative sample of customers participating in both the 1998 NSPC and 1999 LNSPC Programs. The interviews with the 1998 end-user participants were actually re-interviews with a subsample of participants interviewed by the evaluation team for the 1998 NSPC first-year evaluation.

General Characteristics of the Customer Samples

The 1999 LNSPC sample was stratified into three size strata based on the amount of accepted incentives associated with each *unique* customer in the Program (i.e., on a statewide basis across utilities). A comparison of the sample obtained versus the statewide population of LNSPC participants is shown in Table 2-2. Note that the 10 largest customer participants account for 32 percent of the total program incentives (Stratum 1 in the table). Our stratified sampling approach resulted in our capturing 45 percent of the accepted incentives with a sample of 41 of the 122 unique customers in the Program data we received.

Table 2-2
Stratification Of 1999 Participant Customers By Accepted Incentives

Strata	Definition	Sample		Population	
		n*	Incentives	N*	Incentives
1	Top 10 customers, incentives (>$450,000)	6	$4,366,268	8	$7,799,561
2	Incentives > $250,000 and <=$450,000	10	$4,208,976	23	$9,105,729
3	Incentives below $300,000	25	$2,302,695	91	$7,330,288
	All Strata	41	$10,877,939	122	$24,235,578

- n, N = numbers of unique customers with at least one accepted application as of July 2000 for PG&E and SDG&E and as of December 2000 for SCE.
- Note: 2 of the customers interviewed had dropped out of the program between the time of the interview and the final update of the program data.

The original 1998 customer participant sample was similarly stratified. In Table 2-3 we present the number of completes by strata for the original 1998 customer sample and the subsample of re-interviews completed in Spring 2000. The original sample of 40 of the 1998 participants captured about two-thirds of what was then the total Program's $34 million of incentives committed. Re-interviews were successfully completed with 29 of the 40 customers originally interviewed, which now comprises roughly 53 percent of the current 1998 funds committed.

Table 2-3
Stratification Of 1998 Participant Customers By Accepted Incentives

Strata	Definition	1999 Follow Up		1998 Evaluation	
		n*	Incentives	N*	Incentives
1	Top 10 customers, incentives (>$720,000)	7	$9,409,765	9	$11,185,486
2	Incentives > $300,000 and <=$720,000	6	$1,869,496	15	$6,033,427
3	Incentives below $300,000	16	$1,564,780	66	$7,009,492
	All Strata	29	$12,655,581	90	$24,228,405

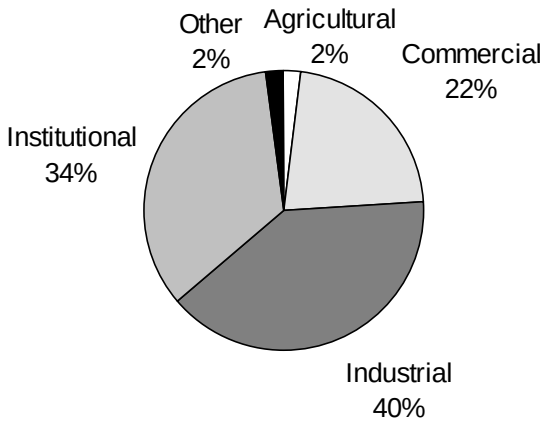
*n, N = numbers of unique customers with at least one accepted application as of July 2000 for PG&E and SDG&E and as of December 2000 for SCE.
Note: 3 of the customers interviewed had dropped out of the program between the time of the interview and the final update of the program data.

As shown in Figure 2-1, Industrial and Institutional[4] customers made up the majority of the 1999 sample, whereas institutional and commercial made up the majority of the 1998 interviewees. Three-quarters of participating customers interviewed were part of multi-site organizations and 83 percent owned at least a portion of their space.

[4] Institutional refers here to government, education, and hospitals.

Figure 2-1
Breakdown Of Participant Customer Sample By Market Segment (1999)

(n = 41)



About half of the sampled participants in each year self-sponsored, while the remaining customers used third-party EESP sponsors. From our interviews, we also found that about one quarter of firms who sponsored their own applications also used third parties for a significant portion of their projects, especially to assist with the M&V process.

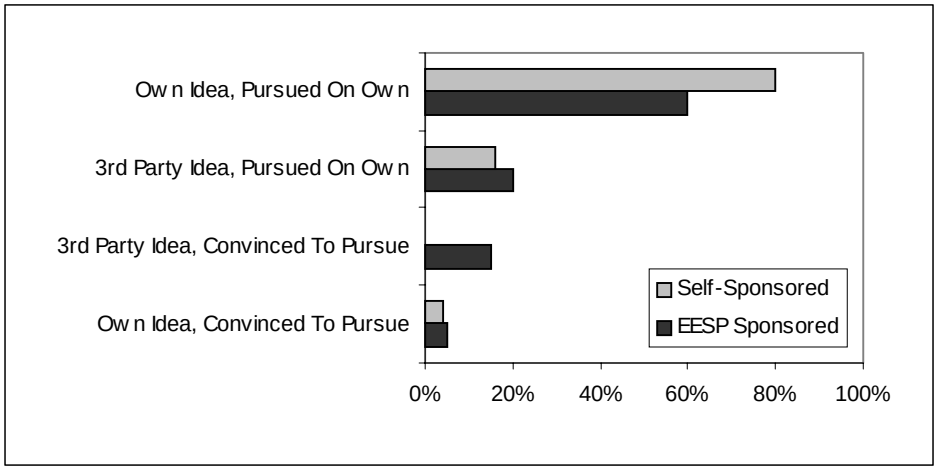
Origin of Decisions and Role and Significance of Third-Party Firms

To begin the process of understanding how customers made decisions about the energy-efficiency measures, we asked how they first heard about the energy-efficiency opportunities they installed as part of the program. The 1999 Program respondents gave a variety of answers. *Over half of the respondents said that they learned about the opportunity from a previous installation with which they or their organization was involved.* Roughly a third of respondents said that they first heard about the measures they implemented in the program through an EESP. With respect to how they learned of the 1999 LNSPC Program itself, in contrast to the energy-efficiency opportunities, 71 percent indicated that it was through a utility representative, and 29 percent said from an EESP.

One of the key objectives of the nonresidential SPC programs is to increase the level of interaction and business between end users and EESPs. A number of questions were asked of customers to better understand their decision-making process and the effect on that process of EESPs. Customers were asked to pick from a list of descriptions differentiating their role versus the role of any third-party firms in developing the project ideas included in their applications. Responses to this question for the 1999 participants are shown in Figure 2-2 by sponsorship type. An even larger majority of 1999 participants claim that they developed the project ideas

themselves and pursued installation than in the 1998 evaluation results.[5] Only 11 percent of the 1999 customers said that a third party was responsible for actually convincing them to pursue implementation of the projects, compared with 46 percent of the 1998 participants. A noticeable difference in the responses to this question can also be seen when segmented by sponsorship. In this case, 60 percent of non-sponsors (third party) developed the idea and decided to pursue installation without the influence of a third party, whereas 80 percent of self-sponsors report that this was the case.

Figure 2-2
Decision-making Process for Installation of Projects in 1999 Program



Program Participant Experience with Third-Party Firms

Participants entered into various contractual agreements with the third-party firms. In both program years, energy performance contracts (EPCs) were only used by EESP-sponsored customers, where they comprised about 40 percent of contractual agreements for this group. Fee-for-service contracts accounted for about the same percentage among EESP-sponsored customers. Thus, ***performance contracts occurred on only about 20 to 25 percent of all projects*** in both program years (since only roughly half of projects are EESP-sponsored).

Overall, ***respondents in both program years were satisfied with the services provided from the third-party firms***. Over 80 percent were "somewhat" or "extremely" satisfied (46 percent said "extremely") with the value of the services provided by the third-party sponsor or firm used to assist with the project. No respondent reported being dissatisfied. However, 13 percent of respondents for the 1999 Program year stated that it was too early in the process for them to evaluate satisfaction with their firm. Another indication of satisfaction with the EESPs was that when respondents were asked whether or not they would recommend (or already have

[5] In 1998, 44 percent said that they developed the idea themselves, and pursued on their own; 31 percent said that while they had developed the idea, a third party convinced them to pursue installation; 15 percent said they both received the idea and were convinced by a third party to pursue installation.

recommended) their EESP to others, results were overwhelmingly positive. Nearly 90 percent said they would, or already had, recommended the EESP.

Interestingly, EESP-sponsored customers were asked if their opinion of energy service companies had changed or stayed the same as a result of the Program. Two-thirds of respondents' opinions had *not* changed as a result of the Program, while ***a quarter of respondents reported a more favorable view of energy service companies***.

Although only about one quarter of the positive perception of EESPs appears to be attributable to the program (most customers reported that their general opinion of EESPs had not changed), ***the overall high levels of satisfaction may indicate that the industry is more successful at achieving satisfaction than previously thought***. This has implications for program design. Because many customers appear to have already had generally positive views of EESPs upon entering the program, the influence of the program could be increased by communicating the positive experiences of participants to those customers who are more skeptical of EESPs.

Estimated Free-Ridership

Estimation of free-ridership is included in this evaluation for two reasons: 1) it provides an important short-term measure of the amount of saved energy attributable to the program (resource acquisition benefits), and 2) it provides input for our assessment of the extent to which the program is generating market effects (market transformation-related benefits). Free-ridership estimates were calculated on both a weighted and unweighted basis. Weights were based on the amount of kWh saved by each customer. Responses to several questions were used to make the customer-specific free-ridership estimates. These questions addressed the importance of the program incentives and EESP services on customers' decision to install their energy-efficiency projects.

Our previous reports and publications reported that our estimated weighted average net-to-gross ratios (NTGRs)[6] for the 1998 NSPC was 0.53. For the 1999 LNSPC the results are remarkably similar: the unweighted average of the NTGRs is 0.48, while the weighted estimate is 0.51. In either case, ***it appears that slightly less than half of the projects associated with the LNSPC Program are likely to have occurred in the absence of the Program***. A distribution of the customer-specific NTGRs is shown in Figure 2-3. As is consistent with the NTGR results for the 1998 Program, the NTGRs were lower for the customers that Self-Sponsored (0.42) in comparison with those who came into the Program via a third-party EESP's application (0.57). This provides additional support for the hypothesis that projects with EESPs as third-party sponsors were more likely to have been stimulated by the Program.

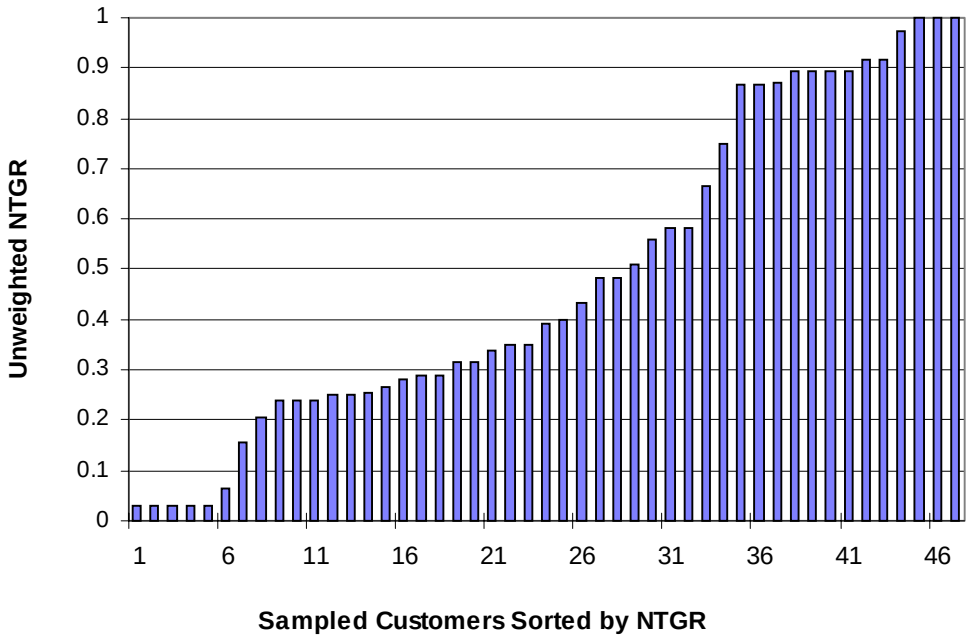
Measure Satisfaction, Diffusion of Information, and Future Energy-Efficiency Actions

Measure satisfaction is an important leading indicator of several market effects. If customers are satisfied with their measures they are more likely to implement them again in the future and

[6] The net-to-gross ratio used here equals 1 minus the free-ridership percentage.

communicate their benefits to others. Customers indicated that they were generally satisfied with the measures that they installed under the programs. ***Across both program years, approximately 61 percent of customers said they were "extremely" satisfied with the measures installed and another 19 percent noted they were "somewhat" satisfied***. The vast majority, ***90 percent, said that they would share information about the benefits of the projects implemented internally with their organizations***. Roughly ***half said they would share the information externally*** as well.

Figure 2-3
Range Of Unweighted NTGRs for 1999 LNSPC Across Sampled Customers/Projects



Respondents were asked if they planned any additional measures as a result of the Program. ***Two-thirds of the 1998 customers and nearly half of the 1999 respondents said they planned to install additional energy-efficiency measures, at least in part as a result of program participation***. Ten percent of the 1998 respondents said that there was nothing left to do, while 8 percent of the 1999 respondents said it was either too early to tell or they did not know.

Respondents also rated the significance of the Program on their decision to implement additional measures. Approximately three-fourths of all respondents said that the Program was "somewhat" to "extremely" significant in their decision to implement additional measures.

When respondents who planned to install additional measures were asked if they would install these future measures ***in the absence of future program incentives, 39 percent of all respondents said that they would install most or all of the future measures anyway***.

Use of M&V Results

Because of the central role of M&V in the nonresidential SPC programs, we asked customers several questions about the importance of M&V. First we asked whether, without the program, customers would be willing to pay for M&V and, if so, how much as a percent of project costs. ***Approximately 60 percent of the 1998 respondents and 26 percent of the 1999 respondents said that they would be willing to pay "something" for M&V***. Relatively few were able to provide an estimate of how much their firm would be willing to pay, however. Seventeen respondents provided estimates, which ranged from ½ to 10 percent ***with a mean of approximately 5 percent of project costs***. Interestingly, a number of respondents noted that some M&V was "part of their job" already and therefore felt the organization was already paying "something" and was likely unwilling to pay anything more. Nineteen of the respondents also volunteered that the Program M&V is much more stringent than what they would do on their own.

We also pursued the M&V question from another angle. Respondents were asked how certain or uncertain they were about the estimated energy savings when they first decided to implement the projects. Across program years, 42 percent stated they were "extremely" certain about the estimated savings, while 29 percent said they were "somewhat" certain, and 23 percent said they were "somewhat uncertain." Importantly, ***only 6 percent of participating customers said they were "extremely uncertain" about the projected savings***.

We also asked customers whether they planned to use the M&V results within their organization. ***Over 70 percent said that they planned to use the M&V results from the Program to sell further energy-efficiency projects within their organization***. The 1998 respondents were somewhat more likely to say that they planned to use the M&V results, but this may be due to the fact they were closer to having their first-year M&V results, as many of the customers in the 1999 Program had not yet installed the measures.

Customers who had their applications sponsored by an EESP were also asked if the fact that the Program required the EESP to have a contract for measured savings with the utility increased their confidence in the EESP's estimates of savings. About two-thirds of respondents across program years said that the requirement greatly increased (22 percent), or somewhat increased their confidence (45 percent), in the estimated savings, while 30 percent said that it had no effect on their confidence.

Organizational Practices

The effect of the programs on organizational practices was also investigated. For example, we asked customer participants if they had developed or changed any practice or equipment specification policies as a result of their program experience. Only five participants reported that they had made changes that they would attribute to their program experiences. Customers were also asked if they had any internal reward structures for reducing energy-related operating costs and whether these internal reward structures were developed as a result of the program experience. Only one customer claimed a positive change attributable to the program. When asked more generally whether any "other" changes in the way in which their organization makes

decisions about whether to implement energy efficiency projects occurred as a result of their participation in the programs, about 20 percent of those for whom this question sequence was asked responded affirmatively. However, some of these firms noted the "change" was actually a negative one that *reduced* the likelihood they would pursue energy efficiency or the program as an implementation vehicle in the future.

Process-Related M&V and Paperwork Issues

Approximately 78 percent said that they knew little about the process because the EESP was handling it, or the process had not yet begun. Of the respondents who offered opinions on the Program's weaknesses, the most common responses were that the "paperwork was too detailed, complicated and/or expensive to complete"(46 percent) or the "M&V was too extensive" (17 percent). Over 60 percent of the respondents said that the M&V requirements were reasonable as a general requirement for payment. A few of the larger participants with multi-site applications indicated that they believe the M&V requirements should allow more sampling across similar sites. Several respondents noted that the M&V requirements were onerous, but were understandable since the Program requires energy savings be proven in order for organizations to receive incentive money.

2.2.2 Results from 2nd Year Interviews with EESPs

EESPs play a central role in marketing, developing, and implementing energy efficiency projects and are a key target beneficiary of the Programs. In-depth interviews were conducted with a mix of EESPs (10 who participated only in the 1998 NSPC, 4 who participated only in the 1999 LNSPC, and 10 who participated in both program years). We were able to obtain interviews with each of the Top-10 EESPs participating the 1999 Program. In the process of completing these interviews, we discovered that several large projects had, since the end of the year, either been canceled or put on hold until the PY2000 Program. Moreover, staff turnover at these EESPs had been high and, as a result, several of the people interviewed had a somewhat limited understanding of the history of their firm's projects under the Program.

Role of LNSPC Incentives

While EESPs reported that the incentive were often important to making their project happen, this incentive was rarely viewed as being essential. In fact, with the exception of refrigeration measures, several EESPs characterized the incentives as "icing on the cake," referring to the benefits in addition to those that would already normally be associated with the energy efficiency improvement. Several EESPs reported that they purposefully do not take incentives into account when closing deals with customers because the projects must "fly on their own" without the incentives to eliminate the risk associated with participating in the program. In large industrial projects, the incentives were reported to be sizable but nevertheless small in relation to the overall scale of operating costs that are being addressed through the efficiency measures. Lighting projects were often considered to be cost effective on their own, but the program incentives were seen as being a motivator for customers to take action. EESPs felt that incentives were an especially powerful motivator when projects were being fully financed since

the customer effectively received an up-front cash rebate at the time of installation, without any investment outlay.

M&V Costs and Opinions on Complexity

Although most firms acknowledged that an objective of the M&V requirement is to add credibility to the projects, ***it was also noted that the M&V process was not easy to explain*** to project stakeholders, such as company management, boards of directors, and financing entities. These parties often did not understand the need for precision and therefore preferred a straightforward and intuitive approach toward verifying the level of savings resulting from their investment. ***A number of implementation concerns were raised, all of which have a direct impact upon the M&V costs perceived by the EESPs and their customers***:

- **Number of data points.** The number of data points needed for the M&V was reported to have a tremendous impact upon overall cost. However, in addition to the initial capital outlay for equipment and installation, the number of data points had ripple effects in terms of maintenance and analysis (discussed below).
- **Semi-permanent nature of installation.** Since all metering needs to remain in place for a minimum of two years following installation, the installation became semi-permanent and is treated as such for code and permit purposes. As such, wiring needed to be run in conduit and meet all necessary code requirements, thereby increasing the overall installation cost.
- **Maintenance of data points.** Ensuring a steady and consistent stream of data across a wide range of data points was also a challenge. Lighting loggers, for example, have been removed in offices as a result of both theft and space reconfigurations. Maintenance was also an issue when a large number of sites were distributed over a wide geographic area, and addressing issues at these sites sometimes entailed significant travel and overnight stays in addition to time spent on site installing and calibrating the new equipment.
- **Data interpretation and reconciliation.** Accounting for variations in data was also problematic, especially when many data points were involved. In cases where demand profiles changed markedly for an extended period of time, for example, then this needed to be explained and reconciled with the rest of the recorded data to calculate an accurate energy savings estimate.

M&V costs are perceived to be so high by some firms ***that there was mention of (1) firm specifically discouraging customers from participating*** in the LNSPC program because of the time and cost associated with M&V***, and (2) firms specifically turning down LNSPC-related work*** because of anticipated complications with respect to the program M&V requirements. There were also instances where M&V requirements were determined to be too costly for certain measures, the result of which was that these measures were not included within the project application even though they may have been installed.

In general, ***the EESPs either gave very positive or very negative comments regarding the M&V protocols, with little middle ground***. Those who were in favor of the protocols felt that it added

credibility to their efforts and helped to maintain the credibility of their industry. Those who disliked the protocols reported that the requirements were cumbersome and did not reflect the needs of their customers. This latter group, in particular, emphasized that much less rigorous approaches are used in non-SPC projects and provide sufficient comfort to the customers that they are realizing projected levels of savings.

Potential Market Effects

Although there were exceptions, ***the majority of EESPs interviewed could not cite any effects that the Program had on their firm*** or on the broader marketplace. Reasons offered for this included:

- The SPC Program represented a small part of their overall business volume.
- Many of the firms participating in LNSPC were already established firms with ongoing work with or without SPC projects.
- Some firms preferred to do non-SPC related projects when given the option to choose.

The major exceptions to this fall into two categories: (1) firms who had worked as subcontractors to other larger EESPs and were trying to become a full-service EESP, and (2) firms that had tailored their business model explicitly to take advantage of the LNSPC Program.

In the first category of exceptions, there were a handful of firms that had worked with larger EESPs in the past and were endeavoring to develop projects in which their firm is the sponsor working directly with the customer. These firms, typically lighting installation and maintenance firms, or M&V engineering firms, had thus far experienced mixed results in their attempts. Within the second category, some of the largest participating EESPs in the Program effectively tailored their business models to fit within the design of the LNSPC Program. These firms strongly support the current levels of M&V required by the program, which they appear to have turned to their advantage.

Other General Process-Related Feedback

EESPs that participated in the 1998 and 1999 Programs acknowledged that the Program had improved in 1999. ***Despite the positive*** changes in program applications that were made for 1999, ***participating EESPs still felt that the program applications need improvement*** to eliminate redundancies and save time. Moreover, it was still felt by some that issues remain with industrial projects, which are less common and more technically demanding. Based upon discussions with a limited number of firms that had participated in 1998, but had not participated in the 1999 Program, it appears that many of these firms were no longer interested in participating because of poor experiences with the 1998 Program.

2.2.3 Baseline Customer Results

In this section, we present a summary of results from interviews conducted with representative samples of customers with over 500 kW peak demand (the target market for the 1999 LNSPC). Roughly 700 interviews were completed, split between California (the 3 electric investor-owned utility territories only) and the rest of the remaining lower 48 states.

General Characteristics of the Baseline Samples

The purpose of the interviews was to obtain baseline information to characterize the large customer market (over 500 kW) on topics relating to a variety of establishment and energy-efficiency characteristics, behaviors, and attitudes. Table 2-4 presents selected data comparing the California and non-California samples on an energy-weighted basis.

Table 2-4
Characteristics of Surveyed Establishments

Characteristic	500 - 1000 kW	1000 - 2000 kW	>2000 kW	All CA	Out of State
Job Title Of Respondent (SC1)					
Facilities/Production Manager	57%	50%	57%	55%	62%
Energy Manager	4%	5%	11%	8%	8%
Other Facilities Management/Maintenance	19%	32%	23%	24%	10%
Financial/Administrative Position	15%	7%	4%	8%	16%
President/CEO/Owner	4%	2%	4%	4%	3%
Other	2%	5%	1%	2%	3%
Own or Lease Facility (EC3)					
Own	71%	68%	69%	69%	71%
Lease/Rent	27%	24%	15%	20%	23%
Both Own and Lease	1%	6%	13%	9%	4%
Don't know/refused	1%	2%	3%	3%	2%
Type of Payment Arrangement, Leased Space (EC4)					
Pay All Of Electric Bill	93%	80%	97%	92%	78%
Pay None Of Electric Bill	2%	15%	<1%	4%	19%
Don't know/refused	5%	4%	3%	4%	3%
Type Of Facility Location (EC6)					
Only Site	29%	28%	22%	25%	22%
Multiple Sites	71%	72%	78%	75%	78%
# Respondents	*121*	*120*	*108*	*349*	*350*

Familiarity and Use of Energy Performance Contracting (EPC)

As shown in Figure 2-4, while over half of the firms reported that they were somewhat or very familiar with EPC, still ***almost 40 percent of the California market reported they were unfamiliar with this contract mechanism***. As would be expected, the firms with over 2000 kW

demand were more likely than smaller firms to be familiar with EPC. Interestingly, institutional (83 percent) and office (76 percent) facilities were the most likely to be aware of EPC.

Over one-fourth of the respondents reported that they had been solicited with a performance contract within the past year. Larger firms were somewhat more likely than smaller forms to have been approached. Of the approximately 100 California firms who had been solicited with an EPC, 13 percent had negotiated and signed a contract, virtually all of whom were in the over 2000 kW category (as shown in Table 2-5). Thus, ***a net total of 3.6 percent of customers reported signing a performance contract*** (28 percent offered x 13 percent of those offered signed).

Figure 2-4
Familiarity With Performance Contracting (QPC1)

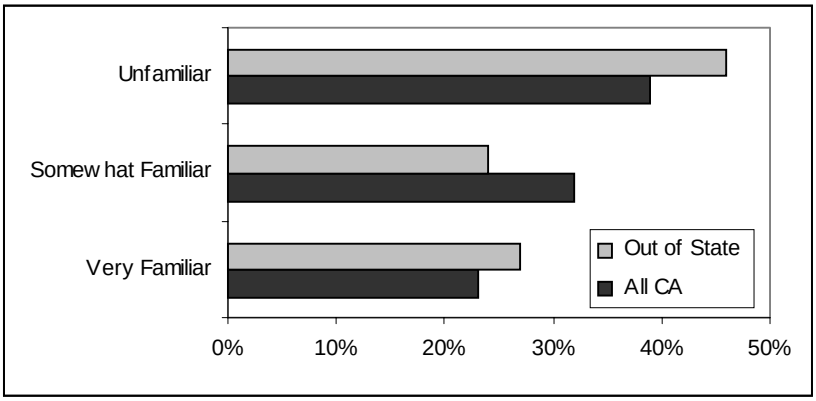


Table 2-5
Outcome Of Performance Contract Solicitation (QPC4B)

Response	500 - 1000 kW	1000 - 2000 kW	>2000 kW	All CA	Out of State
Had Presentation -No Proposal Requested	45%	34%	38%	38%	32%
Asked For And Received Formal Proposal	43%	42%	30%	35%	39%
Tried, But Failed To Negotiate Contract	8%	13%	2%	6%	5%
Negotiated and Signed Contract	1%	1%	20%	13%	16%
Don't Know	3%	10%	10%	8%	7%
# Respondents	*28*	*34*	*39*	*101*	*98*

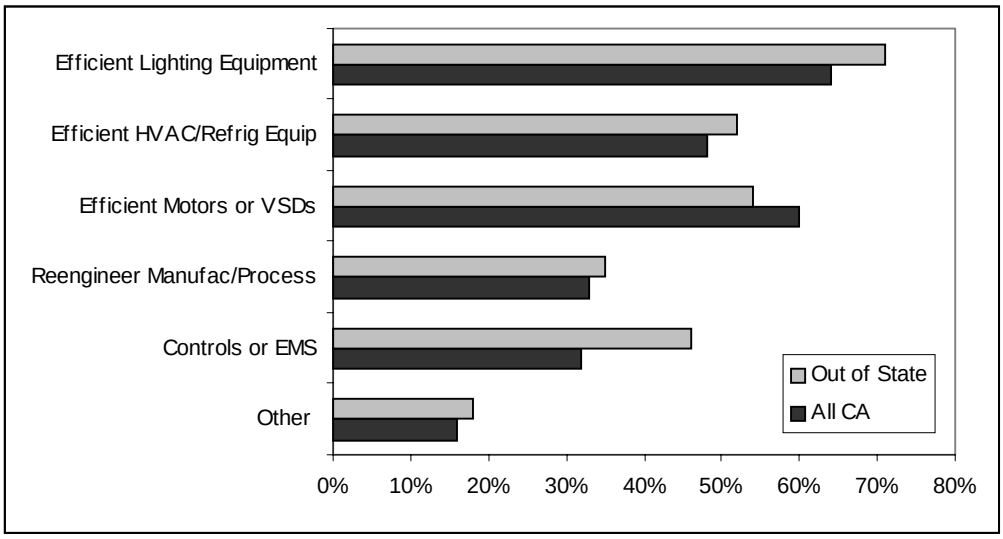
Efficiency-Related Improvements

Approximately 60 percent of the California market reported that they had taken actions to improve energy efficiency in the past year. The percentages were fairly equal across each size

category. However, institutional facilities were the most likely to have taken recent energy efficiency actions, at 72 percent, and office facilities were the least likely, at 50 percent.

As seen in Figure 2-5, the most common actions taken were installing efficient lighting equipment (64 percent in California, 71 percent non-California), installing efficient motors or variable-speed drives (VSDs) (60 percent in California, 54 percent non-California) and installing efficient HVAC/refrigeration equipment (48 percent in California, 52 percent non-California).

Figure 2-5
Type Of Energy Saving Action(s) Taken (QIM4)



Approximately 26 percent of the California firms and 30 percent of the non-California firms reported that they had identified, but not undertaken energy-efficiency actions within the same time period.

Respondents were asked about their familiarity with utility energy-efficiency programs. While only 48 percent of the smallest firms were aware of any programs, 57 percent of all California firms were aware of one or more programs. Firms in the SDG&E territory (63 percent versus 56 percent) were somewhat more likely than firms in the other utility territories to say that they were aware of one or more utility programs. Overall, industrial electronics/machinery, institutional, and office facilities were most likely to be familiar with utility programs.

When asked which specific programs they were familiar with, 53 percent of California firms mentioned rebates or incentives generally. Only 20 percent mentioned energy audits. As shown in Table 2-6, awareness of individual programs varied by size category, with the smallest firms more likely to be aware of SPC programs and audits and the largest firms more aware of Express Efficiency.

Overall institutional facilities reported the highest awareness of all programs, with the exception of energy audits. Using the SPC programs as an example, only 1 percent of industrial petroleum/plastics facilities were aware of SPC, yet 21 percent of institutional facilities were aware. There was also a clear difference in awareness among utility territories, with facilities in the SDG&E territory most likely to be aware of all of the programs.

Table 2-6
Awareness Of 1999 Programs Promoting Energy Efficiency (QPR1)

Response	500 - 1000 kW	1000 - 2000 kW	>2000 kW	All CA
Standard Performance Contracting	17%	10%	9%	11%
Business Energy Audits	24%	15%	20%	20%
Distributor Incentives	13%	7%	5%	7%
Express Efficiency	13%	7%	22%	17%
Rebates/Incentives - Generic mentions	55%	55%	51%	53%
Other Programs - Unclear specifics	33%	38%	43%	40%
Don't Know/Refused	4%	6%	4%	4%
# Respondents	*65*	*75*	*68*	*208*

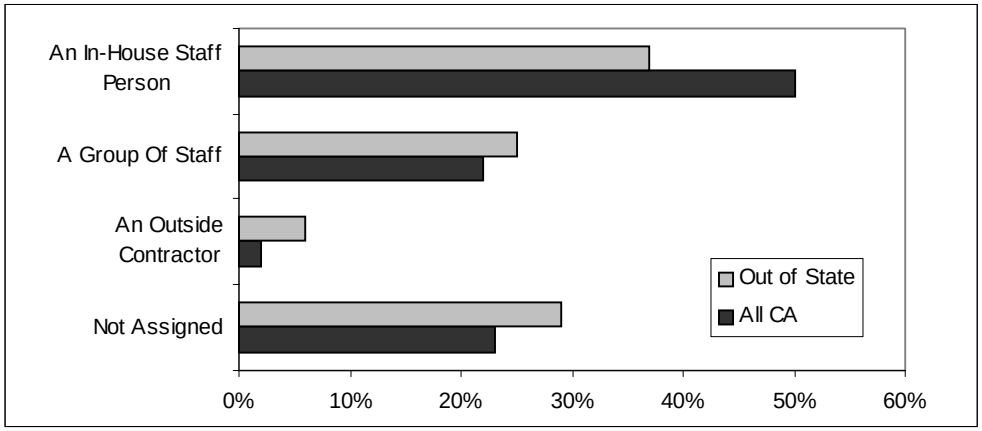
Energy-Related Decision Making

The baseline survey included questions regarding energy-related decision-making, the approval process, staff responsibility for controlling energy costs and specific policies regarding energy efficiency. Respondents were asked to describe whether the process of making investments in energy efficiency within their organization was relatively simple, somewhat complex but manageable, or complex and difficult to get through. Roughly half said the process was somewhat complex but manageable, one third said it was relatively simple, and 18 percent noted it was complex and difficult.

The overwhelming majority of firms reported that the process for approving energy-efficient equipment is the same as for other capital investments, with the largest firms being the most likely at 94 percent. When the results are examined by business type, the results are similar across groups; however, industrial firms are most likely to report the processes are the same, while 14 percent of the institutions reported that they are different.

Most firms reported that they had someone assigned to manage energy costs. Figure 2-6 illustrates that California firms were more likely than non-California firms to have assigned a person or group the duty. As might be expected, the smallest firms were the least likely to have assigned a particular person or group. Thirty-one percent of the smallest California firms interviewed had not assigned the duties, as compared to 23 percent for all California firms and 29 percent of non-California firms.

Figure 2-6
Person In Charge Of Energy Usage/Costs (QDM6)



Overall, approximately one third of the firms interviewed had formalized specification policies for the selection of energy-efficient equipment, as indicated in Table 2-7. In addition, the larger the firm, the more likely they were to have developed formal policies. Institutions were the most likely, at 47 percent to have policies, while industrial, office and commercial firms ranged from 25 to 38 percent.

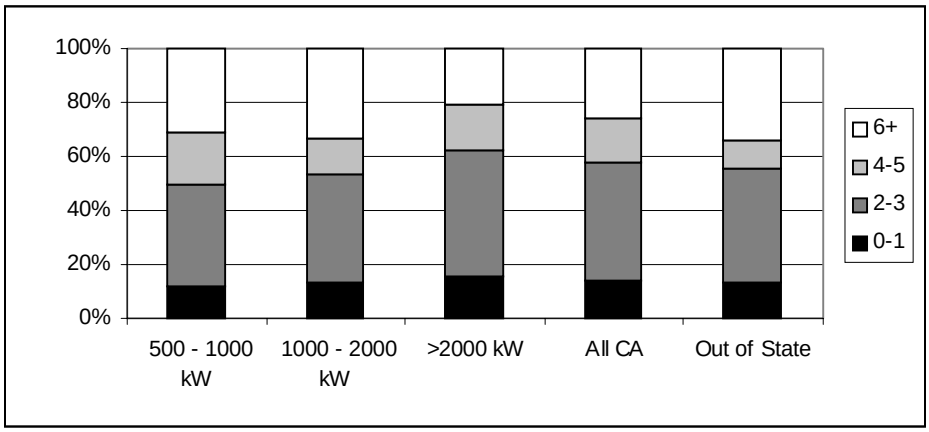
Table 2-7
Any Formal Policy For Selection Of Energy Efficiency Equipment (QDM9)

Response	500 - 1000 kW	1000 - 2000 kW	>2000 kW	All CA	Out of State
Yes	20%	31%	34%	30%	34%
No	76%	61%	65%	67%	64%
Don't Know	4%	7%	1%	3%	2%
# Respondents	*121*	*120*	*108*	*349*	*350*

Most firms report that they do not have any formal incentives for staff to reduce energy costs.

With respect to investment criteria, three-fourth of the firms reported using payback periods for energy-efficiency investments. ***The median payback threshold was around 2.5 years***. The larger the firm, the shorter the payback period was likely to be. As Figure 2-7 indicates, only about 5 percent of the firms allowed payback periods longer than 5 years, which were almost exclusively California institutions.

Figure 2-7
Payback Period For Energy Efficiency Investments (QDM12A)



Measurement and Verification of Energy Savings

To gain information on general attitudes toward M&V, the baseline survey asked if respondent firms valued M&V enough to be willing to pay for it. Almost 70 percent of California firms (68 percent) and 57 percent of non-California firms said that they would or might be willing to pay for M&V depending on the circumstances. ***When asked what percent of project savings they would be willing to pay for M&V, the weighted mean value was roughly 12 percent for California firms and 14 percent for non-California firms***. Approximately 29 percent of California firms and 42 percent of non-California firms were unable or unwilling to give a percentage estimate of willingness to pay. The pattern of estimates given was similar when broken out by size and business type.

Barriers

The survey also included an update of three key barriers that address uncertainty regarding purchasing energy-efficient equipment and related services. Respondents were asked to rank uncertainty as a barrier to potential energy-efficiency investments on a 0-to-10 point scale. As shown in Table 2-8, respondents reported that uncertainty regarding the performance of energy-efficient equipment, estimates of savings, and trustworthiness of third-party firms were all significant barriers to potential energy-efficiency measures. These perceived barriers were most significant for mid-sized firms, though mean ratings for all had a relatively narrow range from 6.8 to 8.1. ***Uncertainty of firm trustworthiness was consistently rated as the most significant barrier*** of the three, in each size and business type category.

Table 2-8
Mean Rating of Uncertainty Regarding Energy Efficient Equipment And Services (QBR1A)

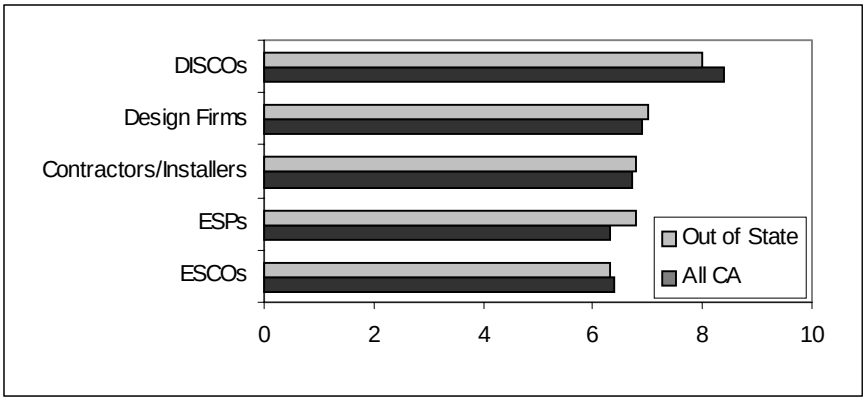
Response	500 - 1000 kW	1000 - 2000 kW	>2000 kW	All CA	Out of State
Uncertainty Of Performance Of EE Equipment	7.2	7.4	6.8	7.0	7.4
Uncertainty Of Actual Vs. Estimated Savings	7.4	7.7	7.1	7.3	7.4
Uncertainty Of Firm Trustworthiness	8.0	8.1	7.6	7.8	7.7
# Respondents	*120*	*118*	*104*	*342*	*335*

Awareness and Assessment of Specific Types of Energy Service Providers and Service Offers

Over half of the firms interviewed had been solicited by a third party to improve energy efficiency in the prior year. Solicitation rates were similar both within and outside California.

Electric utility distribution companies continue to be considered the most credible source of energy efficiency related information. When asked to rate the credibility of different firms as sources of energy efficiency-related information on a 0-to-10 point scale, the local electric distribution utility was rated higher for both California (8.4) and non-California firms (8.0). As seen in Figure 2-8, the second most credible firms were engineering/architectural design firms with a mean rating of 6.9 in California and 7.0 for non-California firms. ESPs and ESCOs received the lowest mean ratings overall, and for California firms in particular.

Figure 2-8
Mean Rating Of Credibility Of Firms As Source Of Energy Efficiency-Related Information (QSP4A)



2.3 MARKET EFFECTS ASSESSMENT

This subsection presents our updated market effects assessment. First, we discuss the process we went through to update the original program theory. Second, we present enhancements to the original theory. Last, we present and discuss our latest assessment of the extent to which the program is generating market effects.

2.3.1 Update of Program Theory

As part of the evaluation of the 1998 NSPC, the evaluation team developed an initial program theory and hypotheses to be used as the basis of the evaluation. One of the first tasks of the current Study was to revisit the 1998 NSPC program theory developed for the previous study.[7] A summary of the results of this process is provided in the remainder of this subsection.

Initial Theory and Relation to Evaluation Scope

The majority of the program theory is focused on the *market assessment*[8] portion of our evaluation. Specifically, the primary goal is to explore the ways in which the LNSPC might lead to causal changes in the marketplace that ultimately result in long-term *market effects*[9] and energy savings. At the same time, it is important to reiterate as part of this discussion that one of the core objectives of the 1998 NSPC and 1999 LNSPC programs is to produce net first-year energy savings. Although this objective does not lead to the same type of detailed market indicator development that is required for market effects hypotheses, the objective is reiterated here to reflect its importance to many of the policy-makers, program managers, and other stakeholders for whom it is an equal or more important objective than the market effects-related goals. It is also important to reiterate that those who emphasize the importance of achieving market effects-related goals do so because they believe that this approach is more likely to lead to greater long-term energy savings than approaches that focus only on achieving first-year savings. Both groups of stakeholders aspire to achieve savings cost effectively. According to some parties, the distinction may simply be one between immediate and verifiable energy savings versus market effects that may well ultimately produce savings more cost-effectively, but perhaps more slowly and less reliably and verifiably.

In the initial program theory we developed for the 1998 NSPC Program, we provided background and context for our program theory through a brief summary of the regulatory history and excerpts of key current policy rules that were relevant to the 1998 evaluation. Rather

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[7] XENERGY, 1999. *Evaluation of the 1998 Nonresidential Standard Performance Contract Program*, prepared for the California Board for Energy Efficiency and Southern California Edison, June, 1999.

[8] For definition, see Attachment 2 to Decision 98-04-063, Interim Opinion: Policy Rules and Request For Proposals For Energy Efficiency Program Administrators, April 23, 1998.

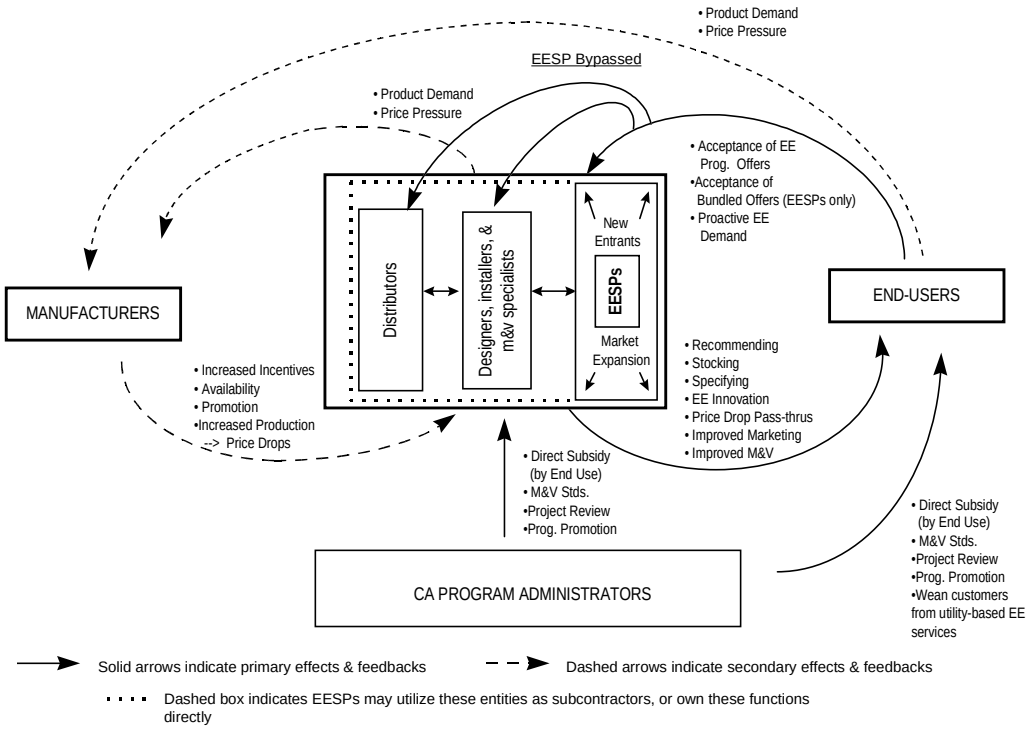
[9] The above policy rules define a "market effect" as: A change in the structure or functioning of a market or the behavior of participants in a market that is reflective of an increase in the adoption of energy-efficient products, services, or practices and is causally related to market interventions.

than repeat those sections here, readers are referred to Section 4 - Program Theory of the *1998 NSPC Study* for this context.

Finally, note that the program theory presented here is just that: a *theory*. The purpose of the theory is to develop a set of plausible hypotheses on how the program *might* lead to specific changes in the markets targeted, not to state whether we currently believe the hypotheses are true or whether or not we believe this particular program is the best way possible to achieve these market changes.

As shown in Figure 2-9, the interventions of the nonresidential SPC programs are focused on EESPs and end users. The principal direct interventions are the provision of financial incentives for energy savings delivered according to the Program's rules, the requirement that project sponsors engage in a performance contract with the program administrator, and the use of standardized M&V protocols for determining the actual savings that result. Though not a requirement, most of the program's designers seek to encourage customers to work with EESPs on projects. Program stimuli for other market actors are more indirect. For example, if the program succeeds in increasing customer and EESP demand for energy-efficiency products and services, then traditional distributors, contractors, and designers will see an increased demand for the high-efficiency aspects of their services. They may fulfill this demand by working with EESPs or, perhaps, by increasing their own provision of EESP-type services (such as performance contracting, efficiency opportunity identification and analysis, and M&V).

Figure 2-9
Possible Market Feedback Mechanisms Initiated by NSPC Interventions



Although not all stakeholders agree on the relative importance of the Program's multiple objectives, most parties do acknowledge that the principal hypothesized effects of the Program are related to changes in EESP practices. As stated in the RFP for the 1998 NSPC evaluation:

> While a range of plausible hypotheses can be developed regarding the ultimate effects of the NSPC Programs on the market barriers facing customers, none of these is likely to be borne out if the programs do not first lead participating EESPs to change their marketing practices and business characteristics in relatively lasting ways.[10]

This statement ties neatly back to the importance of using a theory-based evaluation approach to assessing whether or not program interventions result in changes in complex markets or social systems: namely, that hypothesized program effects should be ordered into *expected sequences of events*. In this case, the first change that should be expected according to this program theory is that energy-related equipment and service providers significantly improve their high-efficiency-related business practices and strategies as a result of participation in the Program. This initial, prime-moving change would set in motion another set of changes in the market, such as increased end-user demand, that then reinforces the initial change.

Over the past year, some agreement has emerged among stakeholders on a few of the desired customer market effects for the 1999 LNSPC. These include increased confidence in the credibility of EESPs, reduced measure performance uncertainty, increased demand for energy-efficiency products and services, and increased knowledge, awareness, and penetration of performance contracting.

Context for Theory Enhancements

In our first-year evaluation of the 1998 NSPC, we concluded that the overall weight of the evidence indicated that the program was generating few near-term market effects (as of the first year). The strength of the evidence in support of the program hypotheses regarding intended market effects was very limited. Besides this absence of evidence supporting intended market effects, there were several other findings of concern in the first-year study, including that:

- Many customers appeared to have self-selected into the program based on previously developed predisposition toward making energy-efficiency investments (perhaps caused, in part, by earlier DSM programs), which manifested in a moderately high level of free-ridership (47 percent).
- A very large percentage (roughly half) of the sponsors were end-users submitting projects on their own behalf, which limited the program reach with respect to stimulating the EESP industry.
- Many EESPs viewed the M&V requirements as onerous, expensive, and overly complex, indicating the program transaction costs were high.

[10] Southern California Edison Company, *Request for Proposal to Conduct an Evaluation of the 1998 Nonresidential Standard Performance Contract Programs*, April, 1998.

In short, it appeared from the early evaluation results that the 1998 NSPC Program (a) was not producing intended market effects hypothesized as necessary for realization of a self-sustaining EESP industry, and (b) was producing several troublesome effects, such as high free-ridership and high transaction costs, that were not adequately emphasized in the original program theory. Note that the first-year evaluation results were delivered in spring and summer of 1999; thus, the 1999 program design was not significantly affected by these findings (since the 1999 design occurred in late 1998). Some notable changes were proposed, however, for the year 2000; unfortunately, these were not implemented for most of the year due to delays in obtaining CPUC approval for the design changes.

As part of the 1999 LNSPC evaluation, in early Spring 2000, the evaluation team made efforts to broaden input to its program theory by requesting stakeholders, including all participating EESPs, to comment on an initial revision of the program theory. Only a few parties provided comments. The major input provided encouraged us to incorporate new research on relevant economic theories of trust and intermediation, which we have.

Theory Enhancements

By way of contrast to fundamental neoclassical economic theory, the economic theory of intermediation explicitly incorporates the costs of carrying out transactions that are reflected in the customer barriers to implementation of energy efficiency. According to this intermediation theory, the total economic costs of any product or service include both the cost of supplying the good, and the costs associated with carrying out exchange transactions in the market. For economically advantageous exchange to occur the value of the good to the customer must exceed the sum of these two costs. From this perspective, many EESPs (in particular, ESCOs) are intermediaries who not only compete against each other but also against direct exchange. In order to compete against direct exchange, ESCOs must reduce total transaction costs. *For a program to improve the market position of ESCOs it must stimulate them to become more effective intermediaries* (by increasing the value, or reducing the costs, of the goods they supply, or by reducing the associated transaction costs).

Advances in the economic theory of trust provide five major findings relevant to the nonresidential SPC programs:

1. Contracts between business organizations are typically incomplete and allow a wide range of behavior, from opportunistic to trusting;
2. Trust-based behavior depends on repeated interaction and reciprocated experience between the parties involved;
3. Reputation must be differentiated from trust. A good reputation can be built by a single agent and is valuable because it encourages customers to initiate trust requiring trading relationships. But it does not guarantee that a trust relationship will develop. And, its development and maintenance depends on compliance being easily observed by the entire community concerned;

4. Institutions can encourage agents to risk renouncing opportunistic behavior and thereby promote, but not guarantee, trust-based behavior; and
5. Contractual strategies vary with the circumstances, including modification of circumstances by factors identified above. Different strategies and contract forms have different effects on performance.

The program could thus help EESPs by increasing end user trust (or temporarily reducing end users' perceived risks of working with EESPs) or by otherwise stimulating increased EESP-end user contracts which provide EESPs with increased opportunities to demonstrate their trustworthiness directly.

Enhanced Program-related Hypotheses

A summary listing of the updated hypotheses regarding the Program's potential market effects with respect to both EESPs and end users is provided in Table 2-9. These and other hypothesized effects and associated market barriers are discussed in more detail in our previous report (see XENERGY, 1999). In addition to the market effects-related hypotheses, we also include "increased net energy savings" as a potential *resource acquisition* effect (though technically not a market effect) in order to address the concern of some stakeholders that this program objective maintains a high visibility within the overall evaluation. We also added a new hypothesis under EESPs, "improved effectiveness of EESPs as intermediaries," and made explicit the term "trust" under End User Hypothesis #1.

Table 2-9
Summary List of Updated 1999 LNSPC Program Hypotheses (new hypotheses in italics)

Hypotheses	
EESPS	**End Users**
1. Development of improved marketing and sales skills	1. Improved confidence and *trust* in EESPs as credible energy-efficiency service providers
2. Improved business strategies	2. Increased confidence in measure savings
3. Increased energy-efficiency product and service innovation	3. Increased awareness and knowledge of the benefits of non-lighting energy efficiency
4. Improved breadth and depth of EESP industry	4. Increase in role of energy efficiency in energy-related procurement practices
5. Improved M&V capabilities	5. Increased demand for EE products and services, especially non-lighting
6. Increased interest in importance and viability of performance contracting as long-term strategy	6. Increased knowledge, awareness, *and penetration* of performance contracting
7. Improved effectiveness of EESPs intermediaries; ability to reduce transaction costs	7. Increased net energy savings

2.3.2 Updated Market Effects Assessment

In this subsection, we provide a brief assessment of the extent to which there is evidence in support of the market effects hypotheses presented in Table 2-10. This analysis builds upon the original market effects analyses developed for the 1998 NSPC Evaluation (see Chapter 10 of XENERGY, 1999). As we did in the original analysis, we present two dimensions to our summary: a rating of the *extent* of the evidence available and a rating of the *strength* of the evidence available.

The *extent* column in Table 2-10 summarizes our assessment of the extent to which the available is convincing. If there is very little evidence available we rate the extent to be weak. If the available evidence is extensive and consistent we rate the extent as strong. If the evidence is partial or somewhat inconsistent, we rate it as moderate. This element is a function of both our data collection activities, information available from secondary sources, and logical considerations such as whether enough time has passed for reasonable measurement of a hypothesis to occur. In the 1998 NSPC report we often rated the extent of evidence for each hypothesis as "weak" because insufficient time had elapsed since the inception of the program, which limited our ability to assess whether changes in the program or market were occurring. (See Section 10, Table 10-15 of the previous report [XENERGY, 1999] for a summary of the expected length of time necessary for each market effect to be observable.) Note that this is no longer the case. Although there are some hypotheses that realistically may require more years of observation to assess well, we believe that the extent of evidence available in the current study is moderate to strong for most of the hypotheses. This is because approximately two years have elapsed since the first customers and EESPs participated in the program and because we have now have the benefit of two years worth of research rather than only one.

The strength column in Table 2-10 summarizes our assessment of whether we believe the evidence provides strong, moderate, or weak support for each hypothesis. In the 1998 Study, we only rated one of the original six end-user hypotheses because we did not believe enough relevant evidence was available to make a defensible judgment for five of the hypotheses. Once again, this is no longer the case, as we have now re-interviewed customer participants in the 1998 program and complemented that with first-time interviews with 1999 customer participants.

We have denoted those ratings that remain the same as ratings in the 1998 Study in italics in Table 2-10. Upon perusal of the Extent of Evidence summary it can be quickly seen that ***our assessment of the depth of the evidence available has increased for all of the original hypotheses***. Thus, our confidence in available evidence has increased significantly since the first-year NSPC study.

As for whether the more extensive evidence translates into more or less support for the hypotheses there is some positive change to report, although the results are mixed. ***In the case of the EESP-related hypotheses we made no major significant or consistent upgrades in our assessment of the strength of the evidence***. The only change in the rating of the strength of EESP-related hypotheses are for "energy-efficiency product and service innovation" and "improvement in breadth and depth of EESP industry"; however, the upgrade was only from a "weak" to a "weak to moderate" rating. ***In the case of the customer-related hypotheses, we made several significant changes, notably that there is "moderate" evidence for more than half of them***.

Table 2-10
Summary of Market Effects Assessment*

Hypotheses	Extent of Evidence	Strength of Evidence
EESPS		
1. Development of improved marketing and sales skills	Strong	*Weak*
2. Improved business strategies	Strong	*Weak*
3. Energy-efficiency product and service innovation	Moderate	Weak to Moderate
4. Improvement in breadth and depth of EESP industry	Moderate	Weak to Moderate
5. Improved M&V Capabilities	Strong	*Moderate*
6. Increased interest in the importance and viability of performance contracting as a long-term business strategy	Strong	*Weak*
7. Improved effectiveness of EESPs as intermediaries; ability to reduce transaction costs	Weak	Weak
CUSTOMER/END USER		
1. Improved confidence and trust in EESP as credible energy-efficiency service provider.	Strong	Moderate
2. Increased confidence in measure savings and valuation of M&V.	Strong	Moderate
3. Increased awareness and knowledge of the benefits of non-lighting energy-efficiency	Moderate	Weak
4. Increase in role of energy-efficiency in energy-related procurement practices	Strong	*Weak*
5. Increased demand for and implementation of EE products and services, especially non-lighting	Moderate	Moderate
6. Increased knowledge, awareness, and use of performance contracting	Moderate	Weak to Moderate
7. Increased net energy savings	Strong	Moderate
OVERALL FOR PROGRAM	Moderate to Strong	*EESPs - Weak* Customers - Moderate

*Ratings that are unchanged as compared with our assessment of market effects in the first-year 1998 NSPC evaluation (XENERGY, 1999) are shown in italics.

Note that the positive evidence associated with customer hypotheses is all associated with customer participants; we do not have any strong evidence that the *program* effects observed among participants have spilled over into the rest of the market. In addition, customer effects are still hampered by a moderately high rate of free-ridership (about 50 percent as noted earlier in this Section and Section 4). Reducing free-ridership would likely increase program effects for several of the hypotheses, in particular, customer hypotheses #1, #5, and #6.

As noted above, there is still little evidence for the market effect hypotheses associated with EESPs. A key assumption underlying the program concept was that program support for EESPs would result in improvements in their business capabilities that would generate net increases in demand for their services. To date, only a handful of firms have indicated that the program has had any significant effect on their business or influenced them to change or improve business practices. This is not surprising given the combination of high levels of self-sponsorship (roughly 47 percent in 1999) and the 50-percent free-ridership rate. As a result, only about 25 percent of the program incentives are likely to be net effects on the market for EESP services, of which half was captured by 2 of the 34 EESPs that participated in 1999.

2.4 RECOMMENDATIONS

We present in this subsection a discussion of our recommendations for the large nonresidential SPC program based on the findings in the current study. ***It is important for readers to remember that the recommendations we are making in this study are based on the 1999 LNSPC program, which is the primary basis of this evaluation***. Changes proposed and implemented in PY 2000 are not within the scope of this evaluation. This is important to recognize because the PY 1999 program requirements were fairly similar to those for PY 1998; hence, many of our recommendations from the previous study remain relevant. At the same time, the program administrators have made and proposed several changes since PY 1999 that are consistent with several of our recommendations. Thus, ***readers should not assume that recommendations we make with respect to PY 1999 are not already being addressed by the program administrators*** (especially with respect to PY 2001).

2.4.1 Program-Related Recommendations

In this section we discuss the following four recommendations:

- *Reassess which, if any, Specific EESP Changes the Program Should Seek to Induce*
- *Continue Efforts to Reduce Free Ridership*
- *Continue to Reassess the Role of Performance Contracting and M&V*
- *Continue Efforts to Reduce Perceived and Actual Costs of Program Participation*

Reassess which, if any, Specific EESP Changes the Program Should Seek to Induce

All utility program filings for the PY 1999 and PY 2000 LNSPC were fairly consistent in their discussions of EESP-related objectives. However, the relative importance of EESP-related objectives versus other program goals, such as increasing net energy savings, may need reassessment in light of the increased regulatory focus on reducing peak demand. For example, if stimulating the EESP market is of the highest regulatory importance, then one may want to consider ways to reduce self-sponsorship and increase EESP-sponsorship in the program; however, if net savings are paramount, than participation should be encouraged regardless of sponsorship type. The relative importance of EESP-related program objectives also is relevant to assessing the purpose of the program's M&V requirements (see M&V discussion below).

The results of this evaluation show that EESPs report that the program is having minimal changes on their business practices (with the exception of a handful of traditional ESCOs who report that the program is increasing their volume of business and reinforcing their strength in M&V). The updated program theory in this study provides a sharper focus on issues related to the role of intermediaries, such as ESCOs, in the market. ***We believe that the evidence to date shows that it is extremely risky for a program such as the LNSPC to change the relative market share of EESPs in what is actually a fairly mature, dynamic market*** (that is, the market for energy-efficiency services for nonresidential customers *over 500 kW* in peak demand in California). There is no evidence to date that the firms with the largest market share in the program are any more likely to succeed in the marketplace in ways that provide net, sustainable public benefits than firms that do not have large program market shares.

The risk associated with attempts to achieve EESP-related market effects through the LNSPC is that this goal puts energy-efficiency policy makers and planners in the position of trying to predict which types of service providers and strategies will be successful in the large customer market. As a result of findings from this evaluation, we have growing concerns about whether interventions aimed at specific EESP-related outcomes are prudent in the large nonresidential market (we are more convinced that such approaches can be effective in the small nonresidential and residential markets). This is because the large nonresidential energy-efficiency services market is already: 1) relatively mature (recall that ESCOs have been operating in earnest for over a decade), 2) already attractive to competitive service providers (as shown Section 6 of this report, large customers already demand a moderate amount of energy-efficiency services and are aggressively solicited for such services), and 3) very dynamic (for example, new energy service providers are being formed all the time with the aim of capturing a share of the large customer market).

What then is the key characteristic of the market for energy-efficiency services (including, performance contracting) among large customers? ***In our opinion, the defining characteristic of this market is that it is <u>unconsolidated</u>*** (for example, the largest providers of performance contracting in the country have only one or two percent market share). The ***private market is*** well aware of this issue and many investors are ***betting on different strategies*** for increasing

their market share. We do not believe that the winning supply-side approach or approaches can be predicted or should attempt to be "picked" by energy-efficiency policy makers and program planners (again, in the case of the large nonresidential market only, our opinion on the need for supply-side interventions in the small nonresidential and residential markets is entirely different). For this reason, we recommend close and critical examination of program objectives that presuppose preferred EESP business models or strategies in the large nonresidential market.

Continue Efforts to Reduce Free Ridership

As presented in the 1998 NSPC Evaluation, end-user participants in the 1998 NSPC were most similar to the largest, most sophisticated end users in the non-residential population. There were three negative consequences of the end-user participant population characteristics that we pointed out in the previous study: 1) a moderately low percentage of program-induced energy savings; 2) a reduced likelihood of observing changes in proximate indicators of market effects (because a high percentage of participants already possessed the characteristics the program seeks to induce); and 3) a lack of participation among hard-to-reach market segments (i.e., those customers with low historic participation in California energy-efficiency programs).

One of the major changes in administration and design of the 1999 nonresidential SPC was the separation of the program into two programs in 1999: the Small Business SPC (SBSPC) and the Large Non-Residential SPC (LNSPC). This change clarified and differentiated the target market for each program strategy (500 kW and above for the LNSPC and <500 kW customers for the SBSPC). There are a wide variety of end-user participants in the 1999 LNSPC Program, as shown in Section 3 of this report. The 1999 participants are somewhat more representative of the large nonresidential market than were the 1998 participants; however, Institutional participants are still somewhat over-represented (this can be seen by comparing the participation results in Figure 2-1 with the breakdown of energy consumption among all customers in the target population in Table 6-1 of Section 6).

Bifurcating the program into two target populations based on customer size did not result, however, in any improvement in the level of program free ridership, which we found is virtually the same for the 1999 LNSPC as it was in the 1998 NSPC. We believe that free ridership is a key factor limiting both end user market effects and net energy savings acquisition. Although limiting free-ridership is not easy in practice, it should be a focus of program redesign so that net public benefits can be maximized. Success in reducing free ridership would likely result in an increase in market effects as well because many of the hypothesized market effects are more likely to occur when customers are induced to take new actions principally as a result of participation in the program.

Another important change in the 1999 Program requirements was incorporation of new funding caps. Under the 1999 LNSPC funding level caps were as follows: $0.4 million per customer site within each territory; $1.5 million statewide for corporate parents and government parents (e.g., state and federal *agencies*); and $6.0 million for all State government and Federal government, respectively. The intent of these caps was to spread the program benefits among a wide group of potential participants, particularly those that may not normally participate in utility energy-

efficiency programs. Unfortunately, this change also appears to have been ineffective in affecting free-ridership levels. Nonetheless, we do not advocate eliminating the caps; rather, the caps may need to be lower to be effective (assuming increased demand for the program can be created).

One of the changes we recommended in our previous report to significantly alter the makeup of end user participants was to ***consider multi-year customer caps***. We hypothesize that repeat participation may be correlated with free ridership, though we caution that this has not yet been established (we recommend further research to assess this issue). We do know that in the 1999 LNSPC, ***half of the Top 10 end-user participants also participated in the 1998 NSPC*** (Top 10 end users each received over $400,000 in incentive payments in 1999). We still believe that a multi-year cap would offer another way of spreading incentive funding among a broader array of end users, if set fairly and appropriately.[11]

Another recommendation we made in our previous report was to ***consider limitations on the number of identical "repeat" measures*** for which incentives are paid to an individual customer. We believe that the rationale for this recommendation also still holds. If an objective of the program is to demonstrate general or measure-specific energy-efficiency benefits, which then stimulate further investments, then it would be reasonable to limit funding to a subset of *demonstration* measures for those organizations with either many identical sites or many identical applications of a given measure. Because free ridership is often strongly correlated with whether a customer has previously implemented the measure for which incentives are being requested, limiting payments for repeat measures is likely to reduce free ridership.

Free ridership is likely correlated with measure type. ***Therefore, incentives may need to be decreased or dropped for some measures and increased significantly for others (e.g., emerging technologies)***. Further investigation is needed to assess whether certain LNSPC measures have higher rates of free ridership than other measures. For example, lighting components such as T8 lamps, electronic ballasts, and compact fluorescent lamps are likely to have high free-ridership rates among large customers. The same may be true for VSDs and high efficiency chillers, although again, more research is needed to establish this. If it does turns out to be the case that free ridership is closely tied to particular types of measures, then the program should either drop or reduce incentive payments for these measures. Conversely, the program may need to increase incentives payments (or reduce program participation costs) for measures that appear to have high potential but limited occurrence within the program. This might be true, for example, of compressed air projects or a number of emerging technologies.

Several of the recommendations above address limiting payments in ways that may reduce repeat payments for projects that would otherwise be installed without the program. Of course, limiting

[11] Note that we do not believe this approach would present any equity problems. Consider, for example, that a 6,000 MWh customer (e.g., 1,000 kW, 6000 full-load hours per year) paying a 3 mill public goods charge contributes $18,000 per year, which is 28 times less than Top 10 participants received in program benefits. Thus, a single entity's participation in a single year typically equates to many years worth of that entity's contribution to the public goods charge.

incentives for one group of customers or projects will have only minimal effect on overall program free ridership unless the size of the group of non-free rider participants is expanded at the same time. We therefore suggest that ***efforts be undertaken to proactively recruit or help EESPs recruit customers that are less likely to be free riders***. How might this be done? First, we believe additional research is needed to investigate whether there are any strong predictors of free ridership that could be used for such recruitment. We have hypothesized several of them in the discussion above including repeat program participation, repeat measure implementation, type of measure implemented, and customer business type. One simple approach to encouraging participation among customers who have not participated in energy-efficiency programs in the past or have implemented few efficiency improvements might be to ***offer a significant first-time program participation bonus***.

A number of customer-participant findings in this report support the hypothesis that positive experiences will lead to further actions and diffusion of efficiency-related innovation within and among organizations. The key is to try to maximize the portion of projects that are net effects of the program thereby increasing the likelihood that spillover benefits can be claimed as program effects.

Continue to Reassess the Role of Performance Contracting and M&V

Throughout the brief history of the nonresidential SPC program in California, there has been some debate among stakeholders, program designers, and policy makers on the purpose of the program's M&V requirements. For some, the primary purpose of the M&V requirements was to protect ratepayers from paying for savings that do not actually occur. Under this model, the M&V requirements and pay-for-performance aspect of the program ensure that payment is made by the utility administrators only for measured savings. For others, the primary purpose of the M&V requirements was to stimulate the market for performance contracting between end users and EESPs. Related goals were to increase end user appreciation of the value of M&V results provide in reducing uncertainty over whether measure savings actually occur and to strengthen the private sector's ability to deliver effective M&V services.

As noted above, only a small handful of participating firms strongly support the current levels of M&V required by the 1998 and 1999 nonresidential SPC programs in California. To the extent that program designers and regulatory policy makers believe that the M&V levels are set at optimal levels for the societal goals staked out for the program, the fact that only a small handful of firms have adapted to and benefited from the program M&V requirements could be seen as an intended program success. Under this scenario, these firms could be considered early adopters of rigorous M&V who demonstrate that the program-required levels of M&V provide substantial benefits to customers; thereby stimulating more end user demand for M&V and interest among other service providers in meeting this demand. On the other hand, if the M&V levels are sub-optimal, which, for example, could occur because they are set at levels that the market will never accept, then the fact that only a small number of firms benefit from the stringent M&V may be a perverse outcome that rewards firms for activities that are ultimately unsustainable. To help assess this question, we offer a few observations on the current market for M&V.

The baseline results presented in the 1998 NSPC evaluation demonstrated a movement away from performance contracting in the nonresidential population as a whole, in part because of EESPs concerns over the high costs associated with carrying out M&V over the life of a contract (typically 10 years). Based on interviews conducted for this 1999 LNSPC evaluation, the trend away from energy savings performance contracting appears to be continuing. The traditional performance contracting approach is reported to be used frequently only with government, hospitals, and other institutional customers.

In response to market concerns over traditional performance contracting, a simpler approach to energy savings contracts between EESPs and end users appears to be gaining ground. This contract vehicle is often referred to as the "guaranteed savings" approach. Under this increasingly popular approach, the level of savings guaranteed for the customer is typically based upon a very conservative estimate of savings made by the EESP. Along with the guarantee of savings, EESPs will often arrange for financing such that there is no up-front cost to the customer. The EESP is paid a share of the guaranteed savings rather than a share of savings measured over time (as is the case with the traditional performance contract). Since the guaranteed savings are effectively used to meet the financing payments, it is in the best interests of both the EESP and the customer to ensure that savings are readily evident from the project. Measurement approaches used to document the guaranteed level of savings are relatively straightforward–generally involving documentation of demand reduction and agreed-upon levels of use–because both parties agree upon the conservative basis of the estimates. In contrast, in the traditional performance contract, the EESP's payment may vary over time as a percent of savings that are measured. Under this approach, there is often tension between the EESP's claim of savings and customer's own estimates (under worst-case situations, this can lead to ongoing disputes over savings and associated payments).

Therefore, consistent with this trend in the naturally-occurring market toward guarantees of minimum savings rather than precise measurement of actual savings, if LNSPC program projects are cost effective and attractive to the customer using a conservative estimate of savings and if all parties are confident that the estimate is in fact conservative, then the rigor of the M&V effort may not have to be as high as it might be otherwise. The focus of the M&V would then be only to ensure that a minimum threshold has been achieved, rather than making a very precise measurement of the savings. Under this approach, the key would be to ensure a minimum level of savings–a level of savings that ensures the project is cost effective for the customer's (and rate payers') investment. With this type of arrangement, the purpose of M&V would become one of documenting that a conservatively estimated *minimum* level of savings has in fact been achieved. The 1998 and 1999 program-related M&V protocols, however, are oriented toward an exact estimate of savings rather than documenting that a minimum threshold has been met.

Said another way, the difference between M&V requirements for conservative versus precise estimates of measure savings is centered on the issue of statistical reliability. The more statistical reliability desired, the higher the cost of M&V (because higher statistical certainty requires larger sample sizes). Contractual relationships that require relatively precise estimates of savings will require larger samples and have higher associated levels of statistical reliability.

Conversely, contractual relationships that are tied to agreed upon savings levels that are purposefully set at conservative levels likely to be less than actual savings, require smaller sample sizes because they can tolerate lower levels of statistical reliability.

Why would EESPs decide to shift toward guaranteeing conservative levels of savings rather than trying to maximize their share of potentially higher levels of savings? A key reason is the costs associated with M&V. In addition, shared savings contracts tied to specific levels of measured savings have also often been the subject of contractual dispute. Thus, proving that specific levels of savings have occurred is often quite expensive, especially when required over the multi-year life of a shared savings contract. As a result, many EESPs have found that it is often more profitable to negotiate a share of conservatively estimated savings rather than attempt to obtain a share of actual savings. In short, this is because the additional costs of measurement (and, sometimes, contractual dispute) often exceed the incremental value of the savings.

Importantly, in the dynamics of the guaranteed savings process, both the EESP and the customer have incentives to lower their estimates to ensure that they have not overestimated the return on the investment. If this approach meets customer and EESP risk needs and if project cost-effectiveness from a societal perspective is still ensured at this minimum level, then this approach may be of interest to regulators and program administrators. Something similar to this market-based M&V approach is currently being piloted in Wisconsin. In addition, we note that the California nonresidential SPC administrators moved in this direction for lighting measures in PY 2000 and have proposed a calculated savings option that would not require field monitoring for selected measures for the 2001 program year (see Section 2.5.2 below for a summary of proposed PY 2001 changes). We strongly support testing of these new approaches in 2001.

Finally, we remind readers that customers in the current study reported that they did perceive some benefit to the fact that EESPs must contract with LNSPC program administrators for their project savings. As a result, we believe that modest levels of M&V coupled with the "endorsement effect" of the EESP-administrator contract can add value; however, the evidence continues to suggest that most of the first-order benefit can be retained even if a major portion of the M&V program requirements are reduced.

Continue Efforts to Reduce Perceived and Actual Costs of Participation

Our position on the importance of reducing the perceived and actual costs of participating in the program has not changed since our 1998 evaluation. We do want to emphasize, however, that the utilities offered several suggestions for this for PY 2000 and even more for PY 20001.

A consistent criticism of the 1998 NSPC and 1999 LNSPC heard from both participating and non-participating EESPs throughout the first two years of evaluation was that the program was too complex, burdensome, and costly. Many of the EESPs interviewed perceived that participation did, or would, lead to significant direct and indirect increases in transaction and hassle costs. These EESPs perceive the costs of participation to be high both in terms of the direct costs associated with meeting the program's paperwork and M&V requirements and the indirect costs associated with having to give up control of the timing of project milestones

(particularly, installation) to a process perceived to be uncertain and very long. ***Most interviewees appreciated that changes were made for the 1999 LNSPC but stated that the changes did not go far enough***.

We recognize that a balance must be struck between facilitating participation and maintaining adequate levels of accountability. We also recognize that the incentive levels of the program were designed to include a premium, when compared to what they might otherwise be under a prescriptive rebate program, in order to offset the additional costs of participating in this type of program. The changes made for the 1999 LNSPC have not convinced any more EESPs that the balance is right. In fact, several EESPs noted that the decrease in incentive payments was not commensurate with reductions in participation costs and thus would lead them to cancel some projects.

2.4.2 Research Recommendations

To continue building upon the body of knowledge being developed through program experience with the nonresidential SPC program model, we recommend additional research in the following areas:

- ***Conduct a process evaluation and market effects assessment of PY 2000 program participants***. Because most of PY 2000 operated under the same program requirements as PY 1999, we recommend a reduced level of effort for this component of the next evaluation. Reduced M&V lighting requirements and other program changes were recommended and developed for PY 2000 but were not implemented until late in the year. Evaluation of PY 2000 should focus on obtaining feedback on those new elements as much as possible. Similarly, evaluation of PY 2001 should focus on whether changes implemented for that program year improve program performance.
- ***Conduct an analysis of first-year M&V results for the 1998 NSPC***. As noted in Sections 1 and 4 of this report, only a few 1998 participants had completed their first-year M&V reporting milestone at the time of our in-depth interviews with them for this study (late spring/early summer 2000). Because M&V has been a critical aspect of the 1998 and 1999 program requirements, it will be important to systematically analyze the first-year results as they become available. Such analyses should include calculation of gross savings realization rates, by measure and end use, as well as further interviews with program participants to gauge their reactions to the results (including assessments of valuation, application, and dissemination).
- ***Conduct more in-depth analyses of the specific types of measures implemented in both 1998 and 1999***. Significant progress was made in the 1999 tracking data in terms of our ability to analyze projects at a measure category level. Further, in-depth analysis of specific projects, especially those with industrial process-type measures and emerging technologies and practices would help to understand the program's strengths and weaknesses with respect to encouraging measure innovation.

- ***Analyze which factors, if any, predict free-ridership***. This analysis should use results from the 1998 and 1999 nonresidential SPC evaluations as well as pre-1998 evaluations of large customers (customized) incentive programs to investigate whether free ridership is strongly correlated with repeat participation, previous installation of applied for measures, end use, measure type, business type, etc. As discussed in Section 2.4.1, developing a better understanding of the factors that underlie free ridership may help to illuminate approaches to reducing it.

2.5 UTILITY PROPOSALS FOR NONRESIDENTIAL SPC FOR PY2001

The changes made for the PY2000 LNSPC Program as well as the filings for the PY2001 LNSPC Program show that several of the recommendations in this report are already being addressed. This summary updates the information, provided in Chapter 1, describing the 1998 NSPC and the 1999 LNSPC Programs.

2.5.1 Summary of Changes From 1999 to 2000

The following are a summary of major changes for the PY2000 LNSPC Program:

- The minimum project size was reduced to 100,000 kWh from 200,000 kWh for the 2000 LNSPC Program.
- The $250 application fee was eliminated for the 2000 LNSPC Program.
- The 2-½ percent installation deposit was eliminated for the 2000 LNSPC Program, except for projects with an estimated incentive of $100,000 or more.
- An Installation Release Form is required to allow installation before the SPC Agreement is consummated.
- The BPA and DPA have been combined into one single application to be filed. Sponsors may chose to also submit a BPA to reserve funds, but it is no longer required.

2.5.2 Summary of Proposed Changes From 2000 to 2001

Several dramatic changes have been proposed for the PY2001 LNSPC Program, which should greatly improve the process and ease of participation from the customers' point of view. The following are a summary of important changes:

- For first time, the utilities plan to offer assistance with the program application and the M&V plan to LNSPC applicants (customer or third party).
- The LNSPC application process will be streamlined to reduce paperwork and speed project approvals.
- The LNSPC incentive levels will be modified to increase energy savings and demand reductions. The incentive levels will be increased and premium incentives for measures that produce peak energy and demand savings will be available.

- The M&V requirements have been modified to include the Measured Savings Option M&V, relaxing the existing M&V requirements to one year of M&V for most projects.
- A Calculated Savings Option instead of M&V will be offered for selected energy efficiency measures and end uses.
- Minimum project size will be reduced to 5,000 kWh or 500 therms.
- A new incentive price category for emerging technologies.
- Customer sites will be limited to a maximum of $500,000 in incentives per site. Corporate parents will be limited to $2 million in SPC incentives statewide. Third party project sponsors will be limited to no more than 25 percent of the total incentive budget in any given year. State and federal government agencies will continue to be limited to $6 million in SPC incentives statewide.

2001 Proposed Modifications

The streamlined application, contract, and payment schedule will be available for smaller projects with total incentives of less than $100,000.

A Calculated Savings Option for M&V of energy savings will be available for selected energy efficiency end-uses and measures. This M&V option provides reference tables for determining electrical demands and hours of operation based on building type, weather data and other variables required for forecasting the expected energy savings from the installation of energy efficient measures. This option eliminates the need for extensive field monitoring of energy savings. Calculated Savings Option end-uses and applicable measures will be expanded as appropriate following utility evaluation and customer requests for adding specific measures.

For the Measured Savings Option, the Project Sponsor will be required to verify the operating loads of the equipment and operating hours for a one-year period. This M&V approach is similar to that used for measured savings in the 2000 SBSPC program. Complex projects with questionable or unproven energy savings or new technologies may be required to perform two years of M&V.

Table 2-11 presents the two levels of incentives, one for the Calculated Savings Option and one for the Measured Savings Option. Both options offer increased incentives from 1999/2000 levels. The incentives for summer on-peak kW savings are the same as the Calculated Savings Option incentive. These incentive levels are subject to change based on market conditions.

Table 2-11
PY2001 LNSPC Proposed Incentive Levels

	Calculated Savings Option	Measured Savings Option
Electric Savings (per kWh)		
Lighting	5.5¢	6.0¢
HVAC and refrigeration	18.0¢	20.0¢
Other (motors, VSDs, etc)	9.0¢	10.0¢
Gas Savings (per annual therm)	$1.00	$1.10

For Calculated Savings Option projects, the first incentive payment (60 percent of incentive) will be paid after the equipment is installed and operational. The 40 percent incentive will be paid six months after the installation payment. For Measured Savings Option projects with one year of M&V, 60 percent of the incentive payment will be made after the equipment is installed and 40 percent after one year of operation. For Measured Savings projects requiring two years of M&V, the incentive will be broken down into three payments: 40 percent after installation, 30 percent after one year and the final 30 percent after the second year of operation.

The utilities plan to work with customers and third parties considering emerging technologies to determine whether the technology meets the program criteria. The utilities plan to also assist in the design of the M&V requirements for emerging technologies appropriate for the LNSPC Program.

The total proposed funding statewide for the 2001 LNSPC program is $35.694 million ($18.444 for PGE, $13.250 for SCE, and $4.000 for SDG&E).

Related Utility-Specific Modifications

Two of the utilities are offering pilot programs supplementing the LNSPC program in their utility service area. SCE will be offering an HVAC Commissioning Pilot as a new eligible measure in the LNSPC. The program is designed to encourage inspection and improvement of the operating efficiency of HVAC equipment in existing buildings. SDG&E will incorporate components of their FasTrac pilot into the LNSPC Program.[12]

[12] The FasTrac program is designed to preserve essential features of the LNSPC program while streamlining and simplifying the application, M&V and funds disbursement process. For more information, please download the FasTrac manual from www.sdge.com.

3 SUMMARY OF PROGRAM TRACKING DATA

In this section, we present summaries of program activity levels and milestones. The analysis presented in this section was conducted to characterize program activity in both the 1998 NSPC and 1999 LNSPC programs as of summer and fall 2000.[1] The purpose of this section is to provide as much information as possible on the impacts of the program both in terms of total savings and expenditures and participation trends among market actors.

Separate program tracking databases are maintained by each of the three utility program administrators. To perform the analyses presented in this section, extracts from each of the three program tracking databases were combined to allow for a summary of program activity at an aggregate, statewide level. Because changes are still occurring in the programs (especially the 1999 LNSPC) with respect to project cancellations, new approvals, and changes in project characteristics, the final population characteristics for the 1999 program will no doubt differ from those presented now. Summaries from the analyses conducted are organized as follows:

- Summary of Program Activity
- Composition of Applicants: Customer Self-Sponsors vs. EESP-sponsored Customers
- Characteristics of EESP-sponsored Applications
- Statewide Participation by End User Segments
- Review of Program Milestones.

While elements in the tracking databases cover both project costs and measure-specific program accomplishments, limited data entry in these fields precludes an analysis of these topics.

3.1 SUMMARY OF PROGRAM ACTIVITY

Program activity, as of summer and fall 2000, is summarized in Table 3-1. As shown, the total number of unique customers and applications has increased between 1998 and 1999.[2] The number of third-party EESPs in the Program and the amount of incentives committed remain about the same. Incentive commitments for SCE are similar for the two years, and those for PG&E increased by about half while those for SDG&E decreased by about half. Expected savings are higher for 1999 for the same level of incentives, reflecting decreases in unit incentive amounts. The average amount committed per kWh decreased by over one-third between 1998 and 1999. Much of this difference is explained by the fact that the incentive price by end use decreased by 25 percent on average across the three end uses between 1998 and 1999 (see Table

[1] This analysis uses data provided by PG&E and SDG&E in July 2000. The SCE data was updated as of November 2000.

[2] "Unique" indicates the total number of different customers (or EESPs) regardless of how many applications they submitted.

1-2 in the Introduction section of this report). The remainder of the difference is likely associated with a shift in the relative distribution of Lighting, HVAC/R, and Other measures between the two program years.

Table 3-1
Summary of Program Activity to Date

Activity Level	1998	1999
Total unique customers	90	122
Total number of applications	139	179
Total unique third-party Energy-Efficiency Service Providers	33	33
Total incentives funds committed	$24.23 million	$24.24 million
Total incentives funds committed - PG&E	$6.3	$9.4
Total incentives funds committed - SCE	$10.3	$11.5
Total incentives funds committed - SDG&E	$7.5	$3.3
Total Savings from applications with active Basic Program Applications	162 GWh	262 GWh
Average Incentives per kWh	$0.150	$0.093

Note that the data shown in Table 3-1 for the 1998 program year are different from the values reported in our 1998 first-year evaluation (XENERGY, 1999). In particular, the total incentives committed dropped from $33.8 million to $24.2 million, estimated energy savings decreased from 231 GWh to 162 GWh, and the numbers of unique customers and EESPs increased somewhat. The 1998 NSPC was fully subscribed as of fall 1998. We have not conducted a formal analysis aimed at decomposing the reasons for the differences in the original versus current 1998 figures; however, there are several possible explanations.

The principal explanation for the difference in the 1998 figures is that the original analysis was based on early program data from fall 1998. There are several implications that result from this approach. First, in fall 1998, most applications were still in their BPA (Basic Project Application) stage, and as a result, savings may have been revised during the BPA process. Second, a number of projects approved by fall 1998 may have subsequently been canceled. Although the 1998 program year had a waiting list as of Fall 1998, it likely that many of these applicants decided to pursue their projects through the 1999 program year. Thus, as 1998 projects canceled during 1999, the total amount of approved incentives dropped below the total available budget. Third, in the current project we requested that each utility provide us with their program tracking data in a standardized format in which each field was clearly defined. This was not the case for the original data received in Fall 1998; thus, some differences may be due to inconsistencies in field definitions.

3.2 COMPOSITION OF APPLICANTS: CUSTOMER SELF-SPONSORS VS. EESP-SPONSORED CUSTOMERS

Table 3-2 summarizes program activity and key indicators for customer Self-Sponsors and EESP-sponsored customers. Customer Self-Sponsors are defined for this discussion as those customers who are contracting directly with the utility administrators and who are the sponsors of record on their submitted applications. EESP-Sponsors, as defined in this analysis, are third-

party sponsors, such as contractors, engineers or energy services companies (ESCOs), who are contracting with the utility administrators on behalf of a host customer facility.

In 1998, 59 percent of the project applications, 60 percent of the incentives, and 62 percent of the GWh savings are attributed to EESP-sponsored applications. These figures drop to 55 percent, 50 percent, and 52 percent, respectively, for 1999. For both program years, EESP-sponsored applications tend to include more sites.

Table 3-2
Composition of Characteristics for Customer Self-Sponsored vs. EESP-sponsored Active Applications

	Customer Applications	EESP-sponsored Applications	Total
1998			
Activities			
Number of unique customers	42	51	90
Number of applications	67	82	139
Total $ incentive (000's)	$10,091	$14,138	$24,228
Total GWh	61	101	162
Comparative Indicators			
Applications per customer	1.6	1.6	1.5
Sites per application	1.3	5.8	4.0
Incentive $ per customer (000's)	$240	$277	$269
Incentive $ per application (000's)	$151	$172	$174
1999			
Activities			
Number of unique customers	65	62	122*
Number of applications	80	99	179
Total $ incentive (thousands)	$12,169	$12,066	$24,236
Total GWh	127	136	262
Comparative Indicators			
Applications per customer	1.2	1.6	1.5
Sites per application	1.7	3.7	2.8
Incentive $ per customer (000's)	$187	$195	$199
Incentive $ per application (000's)	$152	$122	$135

* The total number of unique customers is less than the sum of customers submitting applications directly and customers submitting applications through a third-party sponsor because some customers did both.

The percentage of incentives accounted for by EESP sponsorship varied by utility in both 1998 and 1999 is shown in Table 3-3.

Table 3-3
Percent of EESP-Sponsored Incentives by Utility

Utility	1999	1999
PG&E	58%	78%
SCE	62%	29%
SDG&E	53%	42%

Figures 3-1 and 3-2 show that the majority of multi-site applications have EESP Sponsors.

Figure 3-1
Number of Sites per Customer for Active Applications- 1998

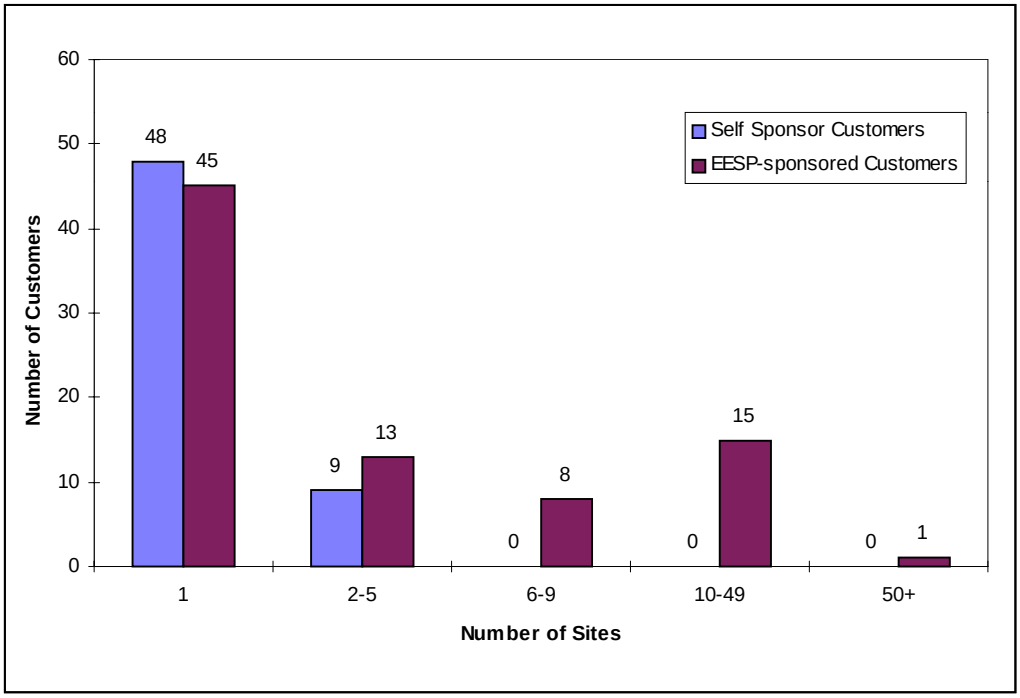
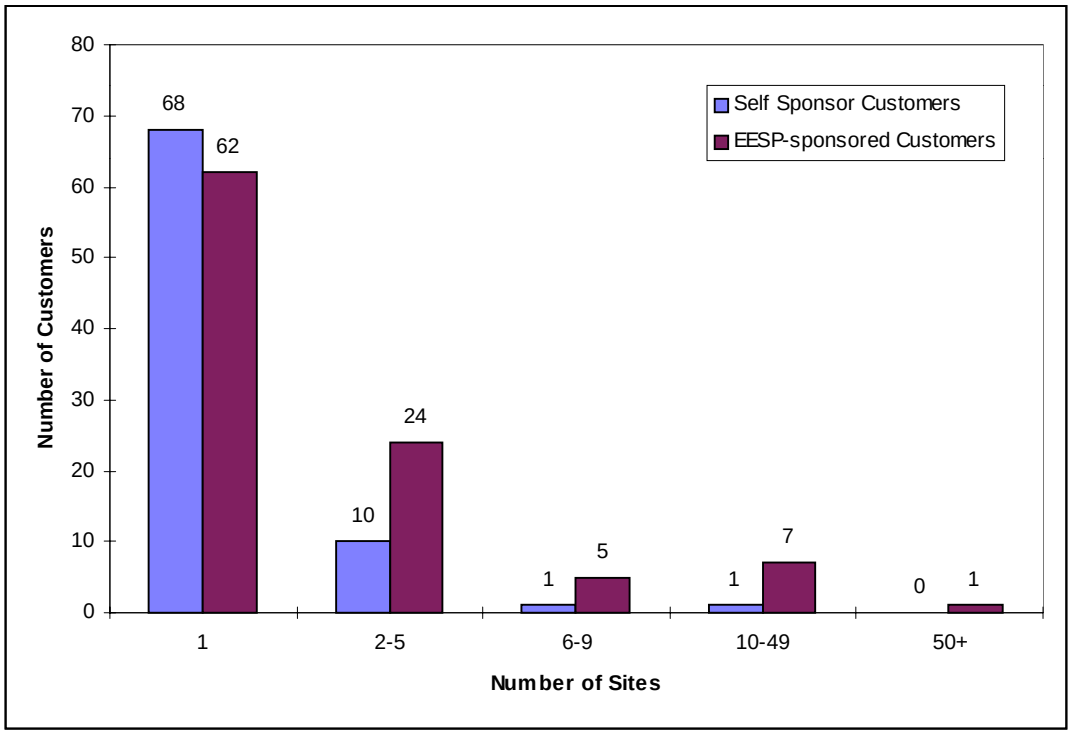


Figure 3-2
Number of Sites per Customer for Active Applications- 1999



3.3 CHARACTERISTICS OF EESP-SPONSORED APPLICATIONS

In this sub-section we present a summary of program tracking results segmented by the type of EESP submitting the application. The following three sub-groups are used for the results presented:

- *ESCO/Retail*: This group consists of ESCOs that offer electricity in addition to demand-side services.
- *ESCO/Traditional*: This group includes traditional ESCOs, which generally do not provide electric commodity, though they may consult on electricity procurement. Firms in this group are generally known to provide performance or guaranteed-savings contracts. This group includes national or regional players.
- *Contractors/Engineers*: This category includes firms that would typically provide energy-efficiency services as an adjunct to other professional services. For example, this group includes engineering design firms and contractors. This group also includes some firms that have some ESCO/Traditional characteristics (such as focusing exclusively on energy-efficiency related services) but were either small, local players, or firms for which no readily available information could be found on whether they provide performance or guaranteed-savings contracts.

- *Other*: Firms that did not fit into any of the three categories above. Examples include property and facility maintenance firms and equipment manufacturers.

Our classification of firms into these categories is subjective. There is no industry coding system for energy-efficiency service providers. Key sources for determining classifications were interviews conducted with a sample of the EESPs and review of available information such as web sites and marketing cut sheets. We have, however, applied our definitions consistently across the two program years and are confident that the groupings are reliable for qualitative analysis purposes.

Table 3-4 shows the number of participating EESP Sponsors by subgroup. The distribution of subgroups has remained remarkably constant between 1998 and 1999.

Table 3-4
Number of Participating EESP Sponsors By Subgroup

	Number of Unique Firms	
EESP Sponsor Category	**1998**	**1999**
ESCO / Retail	3	2
ESCO / Traditional	7	9
Contractors / Engineers	16	18
Other	7	4
Total	33	33

Table 3-5 compares the project characteristics associated with each type of EESP Sponsor. The table shows that, in 1998, Contractors/Engineers submitted 44 percent of the accepted EESP-sponsored applications for 28 percent of the incentives; however, the percent of incentives accounted for by this group dropped to 12 percent in 1999. In 1999, the Traditional ESCO subgroup accounts for the largest share of activity, with 58 percent of the applications and 62 percent of the incentives, up from 32 percent of applications and 40 percent of incentives in 1998. The ESCO/Retail subgroup slightly reduced its percentage of applications and incentives from 1998 to 1999.

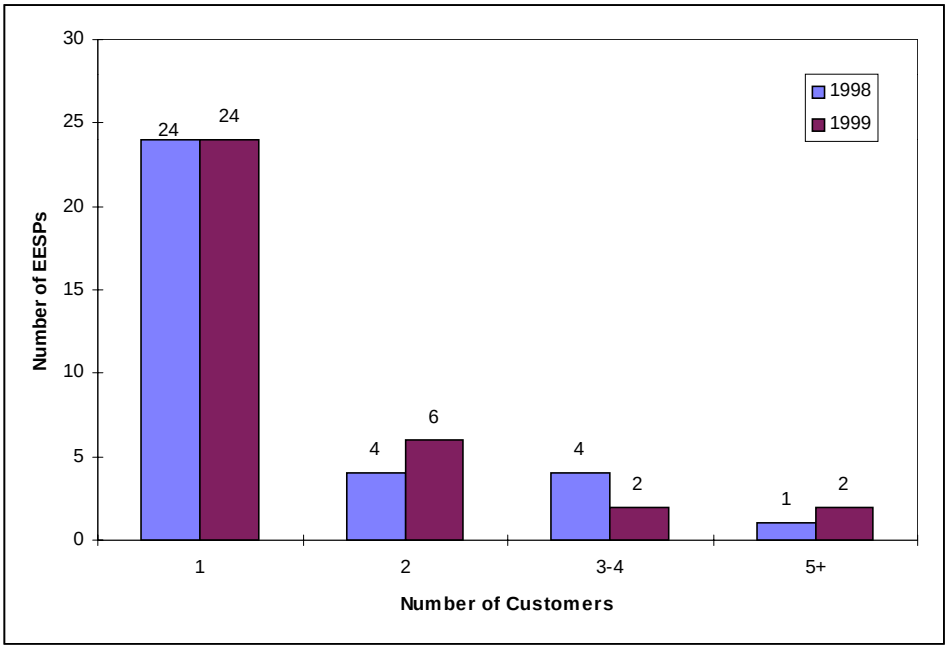
Figure 3-3 shows that the majority of EESP Sponsors have only one unique customer. Only one or two of the EESP Sponsors in each program year have five or more unique customers.

Table 3-6 displays information on the top five EESP sponsors for each program year. For 1998, the top five EESP Sponsors accounted for 37 percent of the total program incentives and 64 percent of the EESP-sponsored application incentives. The concentration was similar in 1999, with the top five accounting for 35 percent of the total incentives and 71 percent of the EESP-sponsored application incentives. The number of customers for the top five providers nearly doubled between 1998 and 1999, and the number of applications sponsored by these firms increased by over one third.

Table 3-5
Comparison of EESP-Sponsor Subgroup Shares of Accepted Projects

	ESCO / Retail	ESCO / Traditional	Engineer / Contractor	Other
1998				
Percent of customers	12%	33%	41%	14%
Percent of applications	15%	32%	44%	10%
Percent of sites	28%	34%	36%	2%
Percent of incentive	24%	40%	28%	9%
1999				
Percent of customers	7%	48%	39%	7%
Percent of applications	9%	58%	28%	5%
Percent of sites	19%	68%	11%	2%
Percent of incentive	18%	62%	12%	7%

Figure 3-3
Number of Customers Sponsored by EESPs for Active Applications



While the provider receiving the most incentives in 1998 sponsored 8 projects for 2 customers, the number 1 provider in 1999 sponsored 36 applications for 18 customers; over 5 times more than any other firm. This largest 1999 provider captured 19 percent of the total program incentives and 37 percent of the EESP-sponsored application incentives.

Table 3-6
Comparison of Top 5 EESP-Sponsors for Each Program Year

Provider	Provider Type	Number of Customers	Number of Applications	Total Accepted Incentives ($million)	% of Total Incentives	% of EESP-Sponsor Incentives
1998						
1	ESCO/Retail	2	8	$3.1	13%	22%
2	ESCO/Traditional	1	5	$1.9	8%	13%
3	Engineering	1	11	$1.5	6%	11%
4	ESCO/Traditional	6	8	$1.4	6%	10%
5	ESCO/Traditional	4	7	$1.1	5%	8%
1998 Total	All Top 5	14	39	$9.0	37%	64%
1999						
1	ESCO/Traditional	18	36	$4.5	19%	37%
2	ESCO/Retail	2	7	$1.6	7%	13%
3	ESCO/Traditional	1	6	$1.3	5%	11%
4	ESCO/Retail	2	2	$0.6	2%	5%
5	Other	2	2	$0.6	2%	5%
1999 Total	All Top 5	25	53	$8.6	35%	71%

3.4 STATEWIDE PARTICIPATION BY END USER SEGMENTS

Figure 3-4 shows a breakdown of incentives by end-user segment, and Figure 3-5 shows the breakdown of unique customers. Incentive shares have increased for both the commercial and industrial segments, while the institutional (government, schools, health care) share of incentives has decreased. The share of commercial and institutional customers have each decreased by 1 percent between 1998 and 1999, while the share of industrial customers has increased by 2 percent.

Table 3-7 shows the percent of unique customers with accepted applications that were EESP-sponsored. Commercial customers were most likely to use third-party applications both years, though the percentage decreased from 41 to 36 percent in 1999.

Figure 3-4
Breakdown of Incentives by End-User Segments

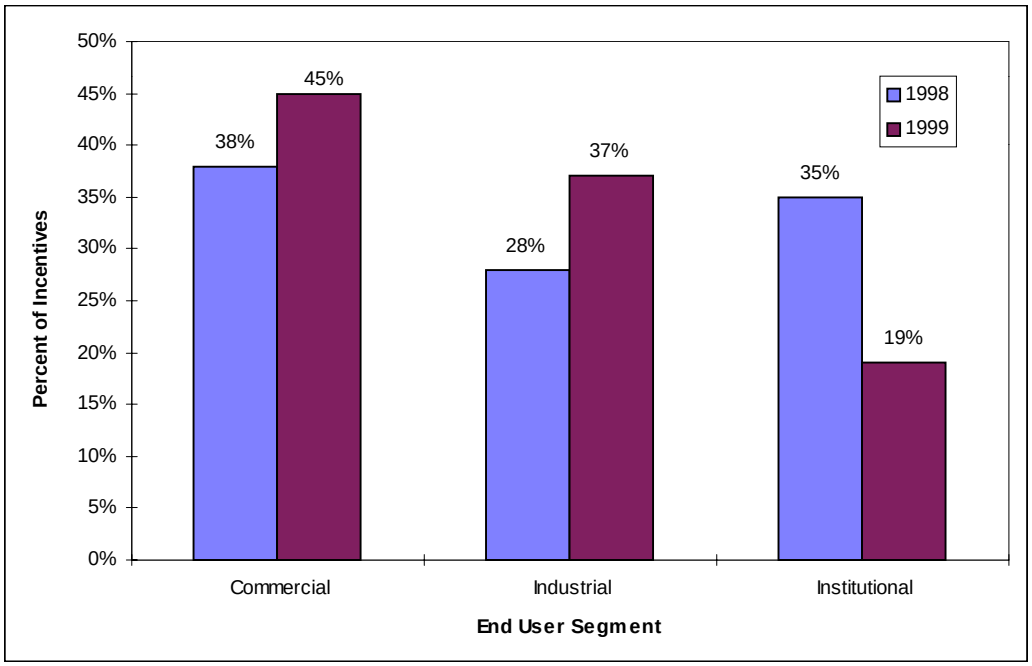


Figure 3-5
Breakdown of Customer Participants by End-User Segment

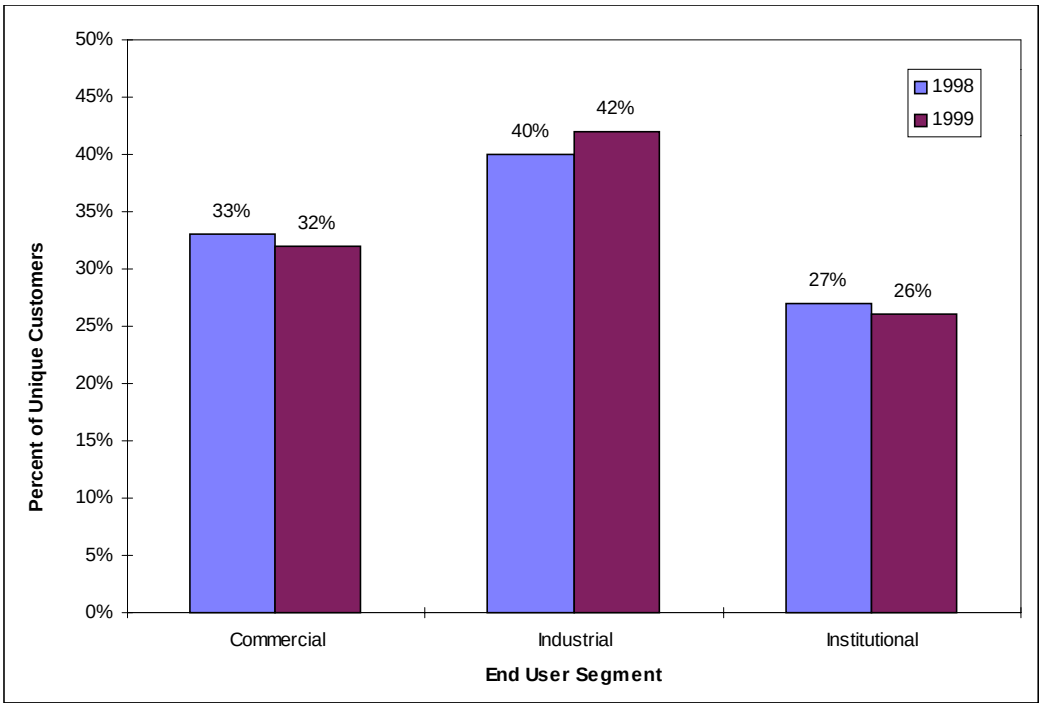


Table 3-7
Percent of Unique Customers who have EESP-Sponsored Applications*

	% of Unique Customers who are EESP-Sponsored	
End User Segment	**1998**	**1999**
Commercial	41%	36%
Industrial	33%	34%
Institutional	26%	31%
Grand Total	**100%**	**100%**

* Those for whom a third-party firm submitted the application.

Table 3-8 shows the end-user segments and percent of incentives for active applications for the top 10 end-user participants (including both Self-Sponsors and EESP-sponsored customers) in each program year. The top 10 end users accounted for 49 percent of the total incentives in 1998, dropping to 37 percent of total incentives in 1999. In 1998, the top 5 end users accounted for over a one third of the program incentives, in 1999 the top 5 end users accounted for almost one quarter.

Table 3-8
Percent of Program Incentives for Top 10 End Users

Rank	Segment	% of Incentives	Cumulative %
1998			
1	Commercial	8%	8%
2	Institutional	8%	16%
3	Commercial	7%	23%
4	Commercial	7%	30%
5	Institutional	4%	34%
6	Commercial	3%	37%
7	Institutional	3%	40%
8	Industrial	3%	43%
9	Institutional	3%	46%
10	Institutional	2%	49%
1999			
1	Commercial	5%	5%
2	Commercial	5%	11%
3	Commercial	5%	16%
4	Industrial	4%	20%
5	Commercial	4%	24%
6	Industrial	3%	27%
7	Commercial	3%	30%
8	Industrial	3%	32%
9	Commercial*	2%	34%
10	Commercial	2%	37%

Table 3-9 shows the end uses included in the active applications for 1998. Table 3-10 shows the same information for 1999. Even with limited detail at the end use level, Table 3-9 shows that HVAC accounts for the largest number of applications and incentives in 1998. Table 3-10 shows that in 1999, HVAC and Other measures account for the largest share of incentives particularly for Self-Sponsored projects.

Table 3-9
End Uses Included for Accepted Applications- 1998

End Uses*	Number of Applications Including End Use	Total Incentives (000's) of Projects Including End Use	Percent of Total Incentives by End Use	Total kWh by End Use	Percent of Total kWh by End Use	Number of Customers Applying End Use**
All Customers						
L	40	$3,802	16%	50,690,974	31.3%	23
H	49	$11,933	49%	58,790,017	36.3%	35
O	20	$3,719	15%	25,714,460	15.9%	19
L,H	26	$3,860	16%	22,103,314	13.6%	22
H,O	0	0	0%	0	0%	0
L,H,O	4	$915	4%	4,820,393	3.0%	4
Total	139	$24,228	100%	62,119,158		
Non-Customer Sponsors						
L	28	$3,447	25%	46,360,605	46.0%	17
H	27	$6,461	46%	30,644,001	30.4%	19
O	4	$275	2%	1,725,353	15.9%	4
L,H	20	$3,352	24%	18,898,608	13.6%	17
H,O	0	0	0%	0	0%	0
L,H,O	3	$572	4%	3,104,486	3.0%	3
Total	82	$14,137	100%	100,733,053		
Self-Sponsored Customers						
L	12	$325	3%	4,330,369	7.1%	7
H	22	$5,472	54%	28,146,016	45.9%	18
O	16	$3,443	34%	23,989,107	39.1%	15
L,H	6	$508	5%	3,204,704	5.2%	6
H,O	0	0	0%	0	0%	0
L,H,O	1	$343	3%	1,715,907	2.8%	1
Total	57	$10,091	100%	66,386,103		

* End use codes:
L = Lighting
H = HVAC and Refrigeration
O = Other

** If customers had multiple applications with different end use codes then the customer is counted in each of the appropriate end-use categories.

Table 3-10
End Uses Included for Accepted Applications- 1999

End Uses*	Number of Applications Including End Use	Total Incentives (000's) of Projects Including End Use	Percent of Total Incentives by End Use	Total kWh by End Use	Percent of Total kWh by End Use	Number of Customers Applying End Use**
All Customers						
L	55	$3,892	16%	77,840,495	29.7%	37
H	29	$4,860	20%	32,794,521	12.5%	25
O	39	$4,978	21%	58,986,750	22.5%	32
L,H	15	$3,767	16%	37,588,173	14.3%	10
H,O	28	$5,312	22%	39,522,634	15.1%	24
L,O	3	$93	<1%	1,651,618	0.6%	3
L,H,O	10	$1,332	6%	13,897,681	5.3%	8
Total	179	$24,236	100%	262,281,872		
Non-Customer Sponsors						
L	44	$2,709	22%	54,175,493	39.9%	27
H	14	$2,548	21%	17,665,681	13.0%	11
O	12	$1,200	10%	14,567,615	10.7%	9
L,H	10	$2,612	22%	21,754,906	16.0%	5
H,O	12	$2,377	20%	21,319,129	15.7%	11
L,O	2	$48	<1%	738,000	0.5%	2
L,H,O	5	$573	5%	5,510,919	4.1%	4
Total	99	$12,067	100%	135,731,743		
Self-Sponsored Customers						
L	11	$1,183	10%	23,665,002	18.7%	10
H	15	$2,312	19%	15,128,840	12.0%	14
O	27	$3,779	31%	44,419,135	35.1%	24
L,H	5	$1,155	10%	15,833,267	12.5%	5
H,O	16	$2,935	24%	18,203,505	14.4%	15
L,O	1	$46	<1%	913,618	0.7%	1
L,H,O	5	$759	6%	8,386,762	6.6%	4
Total	80	$12,169	100%	126,550,129		

*End use codes:
L = Lighting
H = HVAC and Refrigeration
O = Other

** If customers had multiple applications with different end use codes then the customer is counted in each of the appropriate end-use categories.

In an attempt to provide a clearer picture of the end-use breakdown of measures in the program, we disaggregated the cases in Tables 3-9 and 3-10 that were made up of applications with multiple end uses. As shown in Figure 3-6, HVAC/R measures received almost four times the incentives that went to Lighting end uses in 1998, and over twice that of Lighting in 1999. Figures 3-7 and 3-8 present estimated savings in GWh and therms by end use category. GWh

savings from HVAC/R measures remained similar in both years, but savings went up significantly in all other categories from the 1998 to 1999 program year.

Figure 3-6
End Use Category Breakdown of Incentives by Year

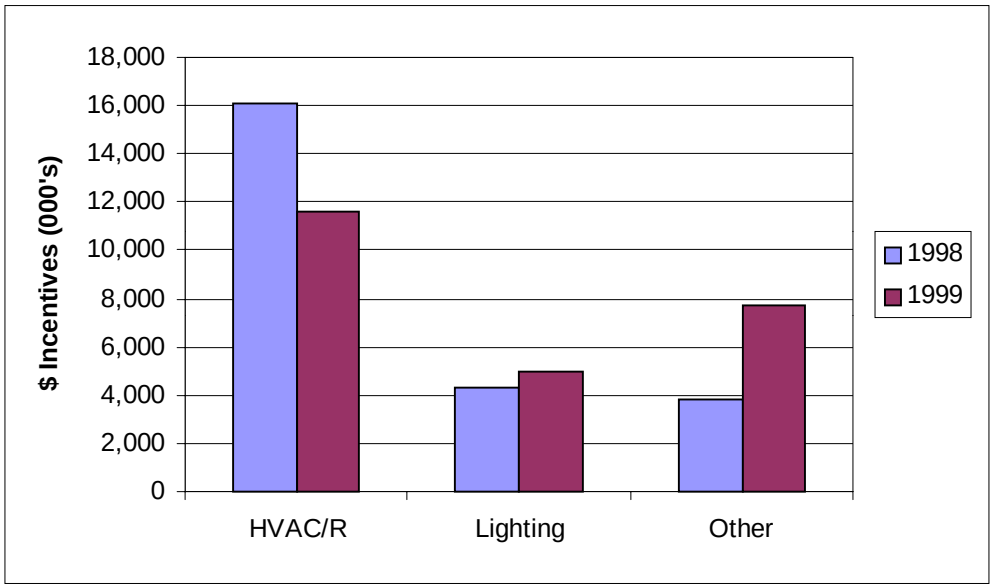


Figure 3-7
End Use Category Breakdown of GWh by Year

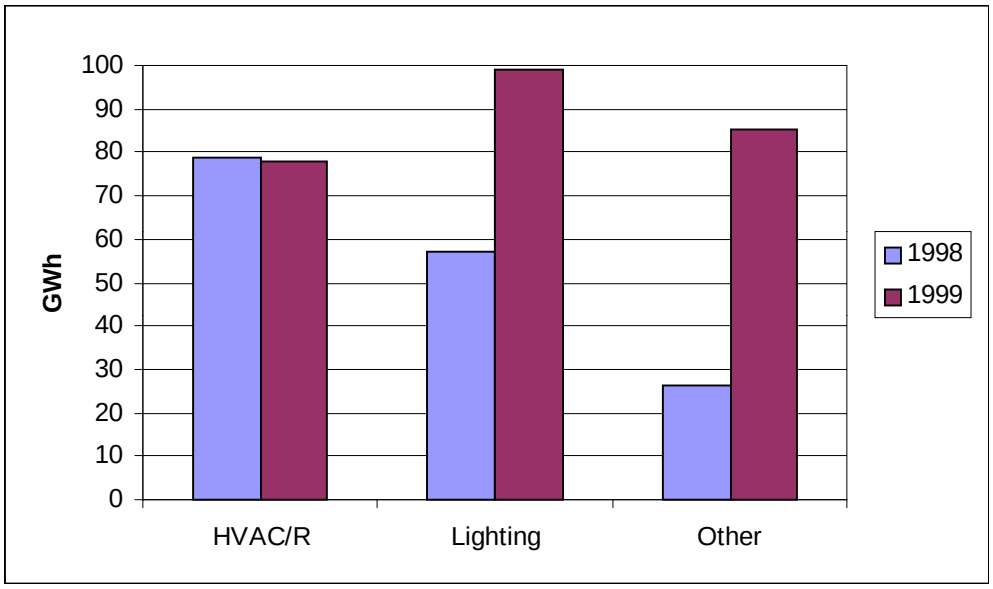


Figure 3-8
End Use Category Breakdown of Therms by Year

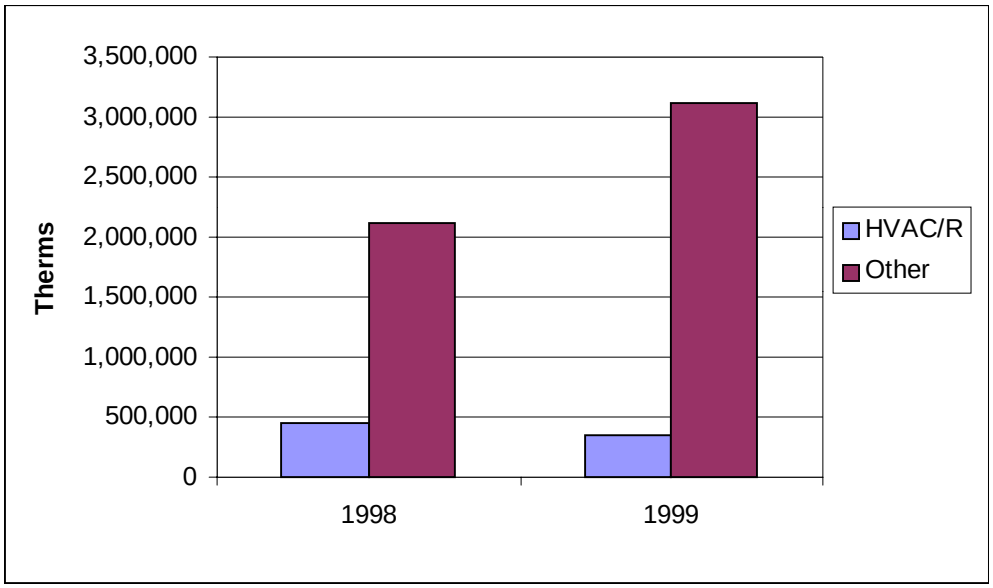


Figure 3-9 breaks down the incentives and energy savings by end use. As can be seen, ratios of incentives to kWh vary dramatically by type of end use. Indoor fluorescent lighting measures and high efficiency motors for process applications account for the highest percentages of both incentives and energy savings.

3.5 REVIEW OF PROGRAM MILESTONES

A review of project status dates provides information on the general progress of projects (Table 3-11) and average duration between key milestone dates (Table 3-12).[3] Nearly all of the BPAs have been approved in each program year. Almost 95 percent of the DPAs (Detailed Project Applications) have been approved for the 1998 program year, and 64 percent for the 1999 program year. The data we received show that about 88 percent of the final site inspections (indicating project completion) have been completed for 1998,[4] and 32 percent have been completed for 1999.

[3] This analysis uses data provided by PG&E and SDG&E in July 2000. The SCE data was updated as of November 2000.

[4] The 1998 figures may be less than 100 percent due to data entry lag. It is believed that all of the PY1998 projects that were not cancelled have been approved and installed.

Figure 3-9
Percent of Incentives and kWh by End Use for PY1999

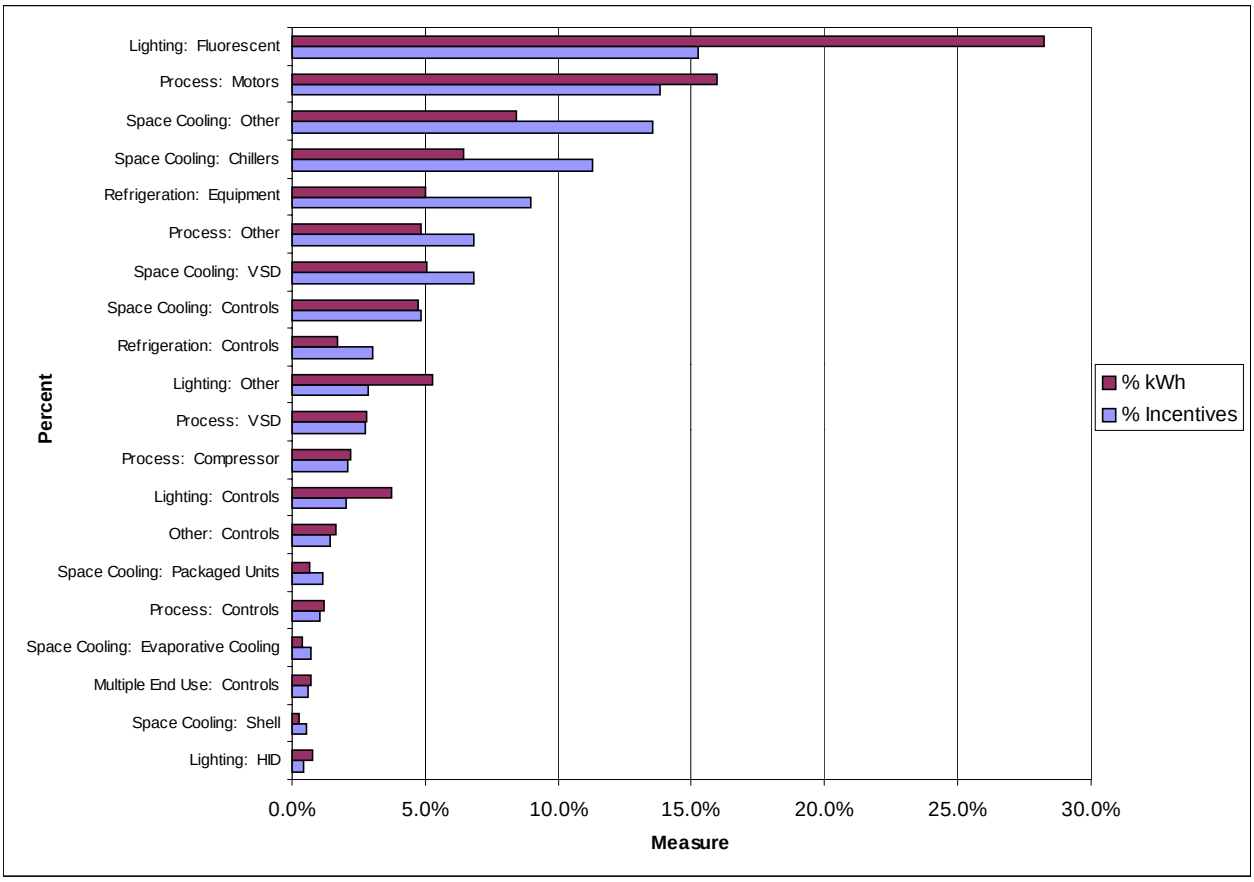


Table 3-11
Percent of Project Reaching Key Milestones

Milestone	1998	1999
BPA Approved	99%	97%
DPA Approved	94%	64%
Final Site Inspection	88%	32%

A key process evaluation issue discussed in the first-year evaluation of the 1998 NSPC was that program participants complained of long lags between program milestones, especially between submission and approval of DPAs. Utility staff noted that this was often because applicants were unfamiliar with program requirements and administrators preferred to take more time working with the applicants rather than rejecting applications outright. Some utilities also noted that peaks in the receipt of applications and the challenges of staffing a new large program may have contributed to delays in 1998. In any case, as shown in Table 3-12, average duration between milestones has been reduced significantly between 1998 and 1999, especially for the critical DPA submission to DPA approval process. This is likely attributable to several factors including increased experience of EESP applicants with program requirements, increased experience of

utility staff and their consultants in assessing applications and communicating desired revisions, and increased utility staffing and use of an expanded group of technical consultants to assist in application review.

Table 3-12
Duration Between Key Milestones (Days)*

Period	1998		1999	
	# Projects	Days	# Projects	Days
BPA Received to BPA Approval	137	46	169	45
BPA Approved to DPA Received	125	121	100	71
DPA Received to DPA Approval	118	152	100	73
DPA Approved to Final Site Inspection	89	237	30	161

* Excludes projects where milestone dates are not in consecutive order (i.e. reflect negative duration).

4 CUSTOMER PARTICIPANT RESULTS

This section presents responses to a set of structured interviews we conducted with a representative sample of customers participating in the 1998 NSPC Program and the 1999 LNSPC Program. These interviews were conducted in May-July 2000; thus, readers should note that several of the key Program milestones had not yet been reached when these interviews were conducted, particularly for the 1999 interviewees. In addition, the 1998 participants were interviewed once before, in fall 1998, as part of the first evaluation of the 1998 NSPC Program. (XENERGY, 1999) The following topics are covered in this section:

- General Characteristics of the 1999 Participant Customer Sample (Section 4.1)
- General Characteristics of the 1998 Participant Customer Sample (Section 4.2)
- Program-Related Decisions (Section 4.3)
- Analysis of First-Year Net Savings Impact (Free-Ridership) (Section 4.4)
- Financial Impact of Program Participation (Section 4.5)
- Program Participant Experience with Third-Party Firms (Section 4.6)
- Process-Related Issues (Section 4.7)
- Program Effect on Future Energy Efficiency Actions (Section 4.8)

4.1 GENERAL CHARACTERISTICS OF THE 1999 PARTICIPANT CUSTOMER SAMPLE

This subsection presents characteristics of the sample of customer participants in the 1999 LNSPC Program for which in-depth interviews were conducted in May-July 2000. The sample was stratified into three size strata based on the amount of accepted incentives associated with each *unique* customer in the Program (i.e., on a statewide basis across utilities). A comparison of the sample obtained versus the statewide population of LNSPC participants is shown in Table 4-1. Our approach was to attempt to complete as many interviews as possible of customers with the 10 largest incentive amounts in the Program (Stratum 1 in the table) and to draw random samples from within each of the remaining 2 strata. This approach resulted in our capturing 45 percent of the accepted incentives with a sample of 41 of the 122 unique customers in the Program at that time, as well as a diversity of project types and sizes.

As shown in Table 4-2, of the total of 41 participating customers sampled, 54 percent sponsored their own applications while 44 percent used a third-party EESP as the project sponsor. One customer, who submitted multiple applications, was a Self-Sponsor on some and used a third party EESP for other projects.

Table 4-1
Comparison of Stratification Of 1999 Participant Customers By Accepted Incentives

Strata	Definition	Sample		Population	
		n*	Incentives	N*	Incentives
1	Top 10 customers, incentives (>$450,000)	6	$4,366,268	8	$7,799,561
2	$250,000 < Incentives <= $450,000	10	$4,208,976	23	$9,105,729
3	Incentives below $300,000	25	$2,302,695	91	$7,330,288
	All Strata	41	$10,877,939	122	$24,235,578

* n, N = numbers of unique customers with at least one accepted application as of July 2000 for PG&E and SDG&E and as of December 2000 for SCE.
Note: 2 of the customers interviewed had dropped out of the program between the time of the interview and the final update of the program data.

When asked why they chose to sponsor their own applications, half of the Self-Sponsors said that they already had the expertise in-house. Other common reasons given (15 percent each) were that the utility recommended self-sponsoring or that it was less expensive to self-sponsor. One Self-Sponsor commented that they believed whoever was paying for the project was supposed to be the sponsor, so since his firm was paying, they self-sponsored. Another mentioned that bringing a third party into the process would have delayed it past the deadline for submission. Another reported that they had used a third party before and that it was too cumbersome.

Six of the 22 (15 percent of total) who sponsored their own applications also used third party firms for a significant portion of the process. Six of the Self-Sponsors provided information on firms they hired to assist with a significant portion of the process. All reported using the third party to assist with M&V, other reasons included to help with the paperwork (3 of 6), or assist with design or equipment specifications (3 of 6). Questions regarding third party interactions, such as satisfaction and type of contract were also asked where possible. (See Section 4.6)

Table 4-2
Breakdown Of Customer Participant Sample By Sponsorship (1999)

Participant Type	Sample	Percent of Sample
Used Third-Party EESP as Sponsor	18	44%
Self-Sponsored	22	54%
Combination EESP and Self Sponsor	1	2%
Total	*41*	*100%*

In Table 4-3, we present the distribution of the customer sample by the utility for which applications were submitted. As can be seen, the sample followed the population distribution by utility as found in the original program data received in March 2000. Note that four multi-site customers had applications accepted across two or more utilities.

Table 4-3
Breakdown Of 1999 Customer Participant Sample By Utility

Utility	Sample	Percent of Sample
PG&E	10	24%
SCE	21	51%
SDG&E	6	15%
PG&E/SCE/SDG&E	3	7%
SCE/SDG&E	1	2%
Total	*41*	*100%*

Table 4-4 presents respondents' reported statistics on the square footage at the sites for which project applications were submitted. The mean size of the facilities is about 700,000 square feet.

Table 4-4
Square Footage Of The Participating Sites Of Sampled Customers (1999)

Square Footage Statistics	
Number of Observations	33
Mean square footage	704,697
Median square footage	300,000
Minimum square footage	7,500
Maximum square footage	6,000,000

Table 4-5 illustrates the distribution of reported average monthly electric usage. The median electricity bill was about $100,000 per month.[1]

As shown in Figure 4-1, the sample of customers also emphasizes the three major market segments, commercial, industrial and institutional, and includes respondents from each of the major segments in the Program population.

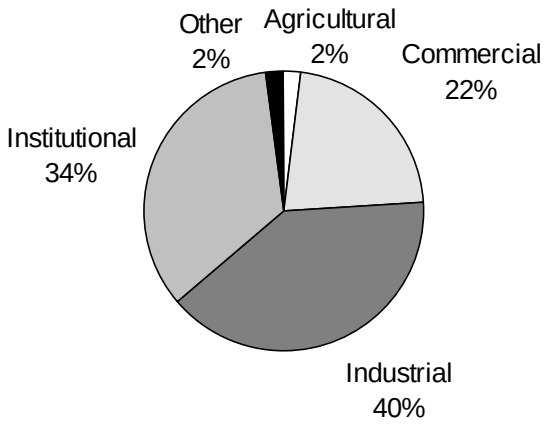
[1] Figures are based on customer self-reports, not utility billing records.

Table 4-5
Electric Usage Of The Participating Sites Of Sampled Customers (1999)

Average Monthly Electric Bill	Percent of Sample
<$10,000	7%
$10,000 - $49,999	22%
$50,000 - $99,999	24%
$100,000 - $500,000	37%
Don't Know	10%
# Respondents	*41*

Figure 4-1
Breakdown Of Number of Participants in Customer Sample By Market Segment (1999)

(n = 41)



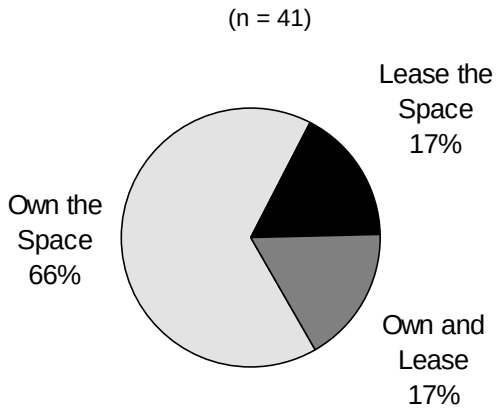
Another characteristic of the sample can be seen in Table 4-6, which shows that three-quarters of participating customers are also customers who are part of multi-site organizations (76 percent). (Note that this is essentially the same percentage as in the population, which is 75 percent as discussed in Section 6, Table 6-6)

Table 4-6
Breakdown Of Sample By Single Versus Multi-Site (1999)

Location Type	Percent of Sample
Only location	24%
Part of multi-site organization	76%
# Respondents	*41*

Figure 4-2 shows the percentage breakdown of facility ownership versus lease arrangement. The majority of facilities in the sample (66 percent) were owned by the participating customer; with another 17 percent a combination of owned and leased space. These figures are similar to the results for the California baseline sample, presented in Chapter 6, where 69 percent owned their facilities and 20 percent lease.

Figure 4-2
Breakdown Of Facility Ownership Or Lease Arrangement (1999)



4.2 GENERAL CHARACTERISTICS OF THE 1998 PARTICIPANT CUSTOMER FOLLOW UP SAMPLE

In this subsection, we present a few characteristics of the sample of customer participants in the 1998 NSPC Program for which in-depth follow up interviews were conducted in May to July 2000. We attempted to interview all 40 of the participants interviewed in October of 1998, the results of which are in the Evaluation of 1998 NSPC Program Final Report. This approach resulted in our completing follow-up interviews with 29 of the 40 customers originally interviewed, including 7 of the top 10 customers in terms of incentives. These 29 interviewees represent 53 percent of the total 1998 program year incentives. Detailed characteristics of the 1998 sample are presented in the 1999 Study (XENERGY, 1999).

The sample was stratified into three size strata based on the amount of accepted incentives associated with each *unique* customer in the Program (i.e., on a statewide basis across utilities). A comparison of the sample obtained versus the original sample of 1998 NSPC participants is shown in Table 4-7.

Table 4-7
Comparison of Stratification Of 1998 Follow-Up Sample Versus Total Program Incentives

Strata	Definition	n*	1999 Follow Up Sample Incentives	N*	1998 Total Program Incentives
1	Top 10 customers, incentives (>$720,000)	7	$9,409,765	9	$11,185,486
2	$300,000 > Incentives <= $720,000	6	$1,869,496	15	$6,033,427
3	Incentives below $300,000	16	$1,564,780	66	$7,009,492
	All Strata	29	$12,655,581	90	$24,228,405

*n, N = numbers of unique customers with at least one accepted application as of July 2000 for PG&E and SDG&E and as of November 2000 for SCE.
Note: 3 of the customers interviewed had dropped out of the program between the time of the interview and the final update of the program data.

As shown in Table 4-8, 55 percent of the total sample of 29 participating customers sponsored their own applications, while 45 percent used a third-party EESP as the project sponsor. Four of the 15 (14 percent of total) who sponsored their own applications also used third-party firms for a significant portion of the process, such as the M&V requirements. Questions regarding third-party interactions, such as satisfaction and type of contract were also asked where possible. (See Section 4.6.) The following tables addressing EESPs include responses from Self-Sponsors who used third-party firms to the extent possible.

Table 4-8
Breakdown Of Customer Participant Sample By Sponsorship (1998)

Participant Type	# of Interviews	Percent of Sample
Used Third-Party EESP as Sponsor	13	45%
Self-Sponsored	16	55%
Total	*29*	*100%*

In Table 4-9 we present the distribution of the customer sample by the utility for which applications were submitted. As can be seen, the sample followed the population distribution by utility as found in the original program data received in March 2000. Note that three multi-site customers had applications accepted across two or more utilities.

Table 4-9
Breakdown Of Customer Participant Sample By Utility (1998)

Utility	# of Interviews	Percent of Sample
PG&E	8	28%
SCE	15	52%
SDG&E	3	10%
PG&E/SCE/SDG&E	2	7%
SCE/SDG&E	1	3%
Total	*29*	*100%*

4.3 PROGRAM-RELATED DECISIONS

In this subsection, we present the responses to a variety of questions asked of participating customers regarding their decision-making processes for their LNSPC-related projects. The following topics are covered in this section:

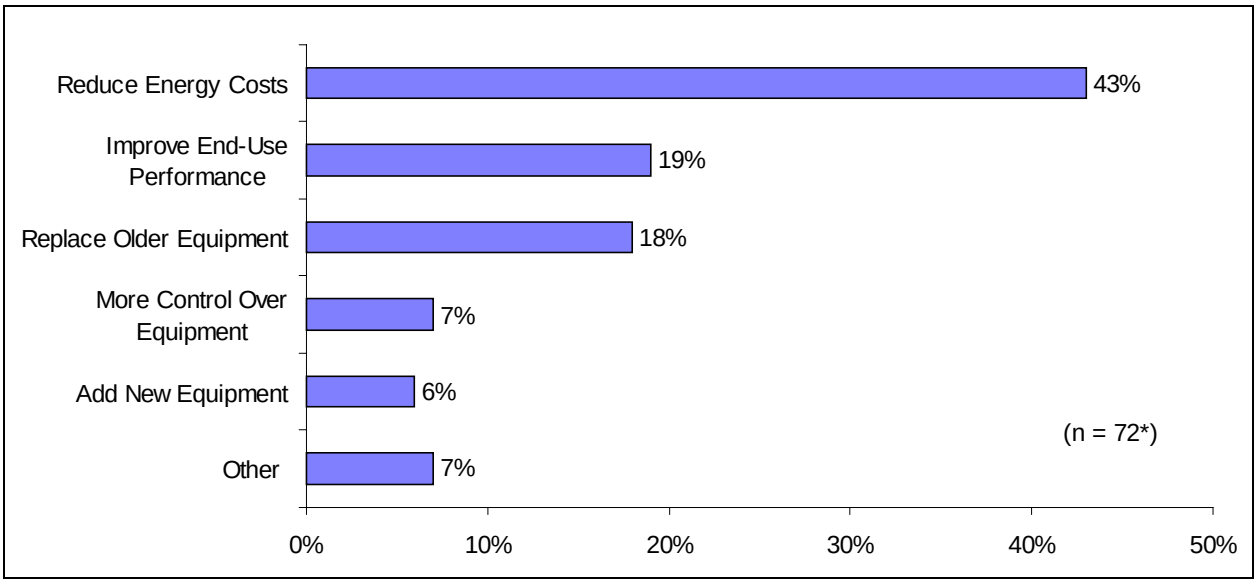
- Origin of Decisions and Role and Significance of Third-Party Firms
- Reported Importance of Program to Implementation Decision

4.3.1 Origin of Decisions and Role and Significance of Third-Party Firms

To begin with, customers in the 1999 Program were asked to describe the situation that led to their decision to pursue installation of the projects in the LNSPC applications. A variety of reasons for deciding to implement the projects were stated, as shown in Figure 4-3. The most common response, at 43 percent, was a need to reduce energy costs. Improving measure performance and a need to replace older equipment were the next most common reasons. Remodeling or expansion was cited by 6 percent of respondents as the major driver toward consideration of the efficiency projects, while the goal of obtaining more control over equipment was cited by 7 percent. Note that some customers gave up to four responses to this question because their applications covered a wide number or a diversity of sites and projects for which they had more than one primary reason or because there was more than one reason for pursuing implementation.

As Table 4-10 illustrates, 58 percent of the measures installed by the 1999 Program respondents consisted of installing new equipment or replacing existing equipment that was fully functioning. Another 38 percent of the equipment had failed or was experiencing significant problems.

Figure 4-3
Description Of Situation That Led To Decision To Pursue Project Installation (1999)



*Does not sum to 41 respondents due to multiple responses

Table 4-10
Condition Of Equipment Replaced Through Program (1999)

Condition Of Replaced Equipment	1999 Participants
Retrofit	46%
Existing Equipment Had Problems Or Did Not Function	38%
Installed New Equipment	12%
Other	4%
# Responses	*50**

*Does not sum to 41 respondents due to multiple responses by measure.

When asked how they first heard about the energy-efficiency opportunities for which they were applying for LNSPC incentives, the 1999 Program respondents gave a variety of answers. As shown in Table 4-11, over half of the respondents said that they learned about the opportunity from a previous installation with which they or their organization was involved. The next most common response, at 13 percent, was hearing about the opportunity from an equipment vendor. Note that the number of responses add to more than 41 as several respondents provided different responses by measure.

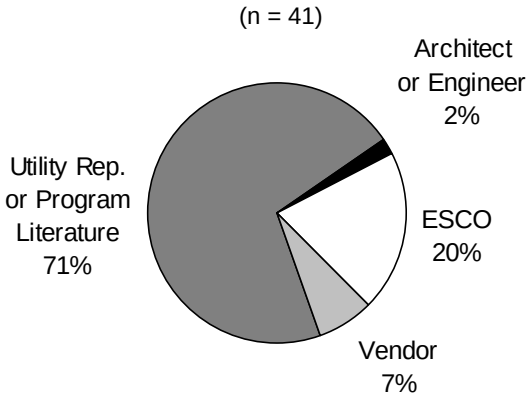
Table 4-11
Means By Which Customers Learned Of Energy-Efficiency Opportunities Included In LNSPC Applications (1999)

Source	Percent of Sample
Previous Installation	52%
Vendor	13%
ESCO	8%
Architect/Engineer	6%
Unregulated ESP	6%
Utility Representative or Program Literature	4%
Business Colleague/Professional Association	4%
Parent Company	2%
Contractor	2%
Other/General Knowledge	2%
# Responses	*48*

* Does not sum to 41 respondents due to multiple responses by measure.

With respect to how they learned of the LNSPC Program itself, 71 percent indicated that it was through a utility representative, as shown in Figure 4-4.

Figure 4-4
Means By Which Customers Learned About The 1999 LNSPC Program (1999)



As shown in Table 4-12, approximately half of the 1999 respondents heard about the Program before or at the same time as they first thought about installing the energy-efficient equipment installed under the Program. Only 23 percent heard about the Program after they had already decided to install the equipment, seeking to then take advantage of the money or install sooner.

Table 4-12
Timing Of Decision To Install Versus Learning About Program (1999)

Response	Percent of Sample
Before Or Same Time As First Thought About Install	51%
Between First Thought And Decision Or Same Time As Decision	26%
After Decision	23%
# Responses	*43*

* Does not sum to 41 respondents due to multiple responses by measure.

Customers were also asked to pick from a list of descriptions differentiating their role versus the role of any third-party firms in developing the project ideas included in their applications. Responses to this question are shown in Table 4-13 on an overall basis and by sponsorship type. A large majority of customers (71 percent) claim that they themselves developed the project ideas and pursued installation. Another 18 percent said that a third party was responsible for developing the idea, but that they decided on their own to pursue installation. Only 11 percent of the customers said that a third party was responsible for actually convincing them to pursue implementation of the projects. A noticeable difference in the responses to this question can be seen when segmented by sponsorship. In this case, 20 percent of EESP-sponsored customers decided to pursue installation based upon the influence of a third party, whereas 5 percent of Self-Sponsors report that this was the case.

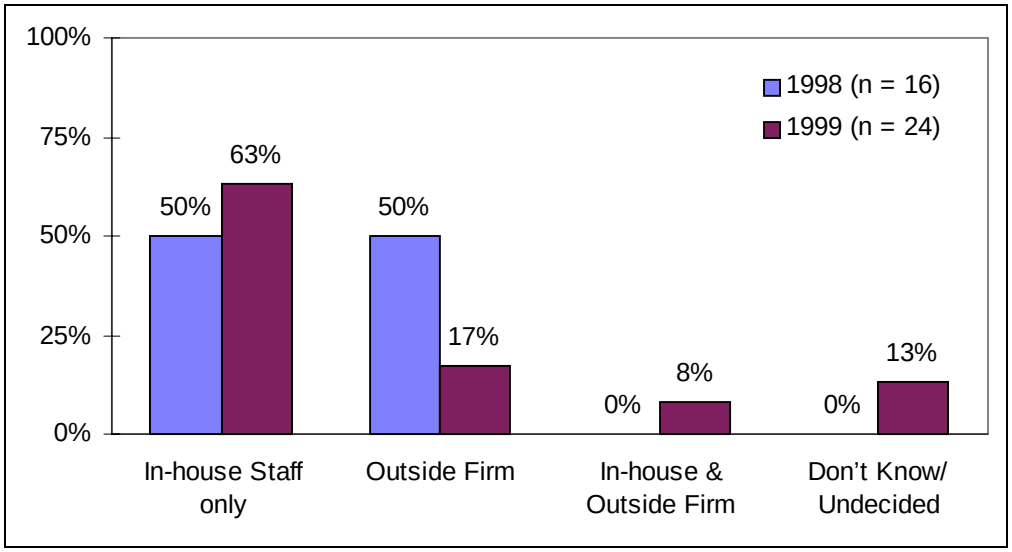
Table 4-13
Description Of Process To Decide To Install Energy Efficiency Equipment For 1999 Program

Response Type	EESP Sponsored	Self-Sponsored	All Responses
Developed Idea Ourselves And Pursued On Our Own	60%	80%	71%
Received Idea From Third Party And Pursued On Our Own	20%	16%	18%
Received Idea From Third Party And Were Also Convinced By This Party To Pursue Installation	15%	0%	7%
Developed Idea Ourselves But Were Convinced By A Third-Party To Pursue Installation	5%	4%	4%
# Responses	*20*	*25*	*45*

* Does not sum to 41 respondents due to multiple responses by measure.

Customers who Self-Sponsored their applications were asked whether they were working with any third-party firms as part of their LNSPC application. As shown in Figure 4-5, 57 percent (13 of 23) of the Self-Sponsors in both program years reported that they were doing all of the work relating to the Program application, such as specification and M&V in-house. Just over one-fourth of the firms in both program years reported that they were using third-party firm(s) in a significant capacity. The remaining 17 percent said that they were using third-party firm(s) but that they did not contribute significantly to the decision-making for the project. In many of these cases, the third-party firms mentioned were described as simply installing projects or completing design specifications that the customer had mostly developed themselves.

Figure 4-5
Self-Sponsors' Use of Third-Party Firms



The result above should not lead to the conclusion, however, that the firms behind the scenes are necessarily playing a major role in the process. This can be seen in the distribution of responses to a question asked about how significant a role third-party firms played in participating customers' decisions to install the LNSPC-related projects. These responses, which used a 0-to-10 scale rating significance, are shown in Table 4-14. Five of the six Self-Sponsors say that the third-party firm played only a "somewhat significant" role in their decision to go forward with the LNSPC project. Also of interest is the fact that 9 of 17 (53 percent) of EESP-sponsored customers report that their third-party sponsors played a "very significant" role in their decision to pursue the LNSPC-related projects.

Table 4-14
Significance Of Third Parties In Decision To Install (1999)

Significance	Self-Sponsor w/ Third Party	EESP Sponsored*	All 1999 Respondents Using Third-Party Firms
Very Significant (8-10)	0%	53%	39%
Somewhat Significant (3-7)	83%	12%	30%
Insignificant (0-2)	0%	29%	22%
Don't Know	17%	6%	9%
# Respondents	*6*	*17*	*23*

* Responses for EESP-sponsored refer to the significance of the third-party sponsor of record on the LNSPC application, not of any other companies that may be involved in the process.

As is consistent with prior evaluations, over half of the respondents who participated in the 1999 Program reported that obtaining a rebate was the most important reason for their participation in the Program. Other common reasons included saving money on electric bill, (24 percent) and replacing old or broken equipment (11 percent).

4.3.2 Reported Importance of Program to Implementation Decision

Self-Sponsors and EESP-sponsored customers were both asked two key questions that center on the role of the LNSPC incentives in their decision to implement the projects included in their Program applications. One question phrases the influence of the incentives in terms of their significance, while the other question is phrased in terms of what they would have done had the incentives not been available. The responses to these two questions are presented in Figure 4-6 and Table 4-15. Note that these questions are intentionally designed as cross checks of customers' responses. Use of this cross check exposed some inconsistency.[2] Over one-third of respondents (37 percent) stated that the incentives had a very significant influence of their decisions by choosing 8-10 on a 0-to-10 scale. At the same time, only 9 percent indicated that they definitely would not have installed the project without the incentive, while 71 percent said they probably or definitely would have installed the projects anyway. These results indicate that the Program incentives are likely to have had at least a partial effect on customers' decisions and that, despite the fact that many customers rate the importance of incentives highly, a significant portion indicate that they were already planning to implement a significant share of the LNSPC projects. This issue is addressed further in the next subsection, Analysis of First-Year Net Savings Impact.

[2] This level of inconsistency, however, is not uncommon for this combination of questions. This combination of questions has been used on a large number of utility program impact studies and there are a variety of techniques for interpreting the differences between them. This issue is addressed further under the net-to-gross section.

Figure 4-6
Self-Reported Significance Of Incentives On Decision To Install LNSPC Projects (1999)

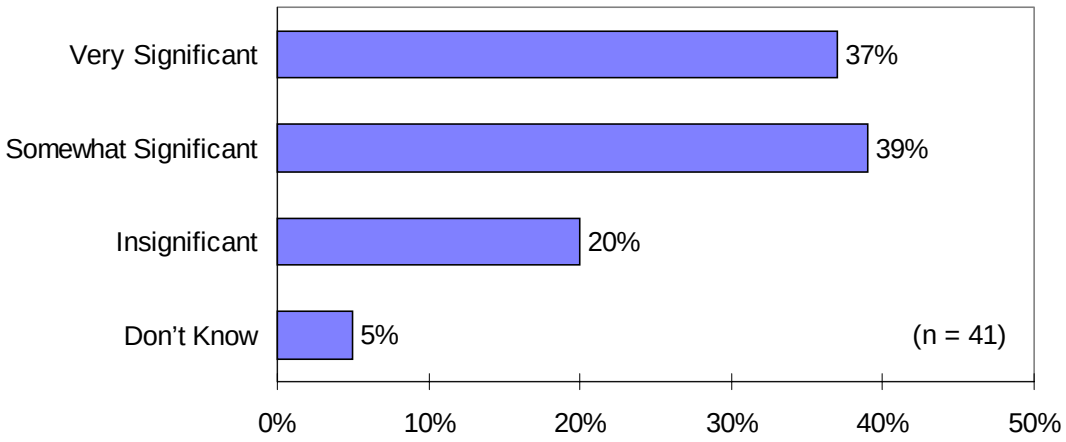


Table 4-15
Self-Reported Likelihood Of Installing Projects Without LNSPC Incentives (1999)

Response Type	1999 Participants
Probably Would Have Installed	39%
Definitely Would Have Installed	32%
Probably Would Not Have Installed	20%
Definitely Would Not Have Installed	9%
*# Responses**	*44*

* Does not sum to 41 respondents due to multiple responses by measure.

When asked what type of equipment they would have installed in absence of the Program, almost half said that they either would have installed less efficient equipment or would not have installed any equipment at all. (See Table 4-16.)

Table 4-16
Efficiency of Equipment Installed in Absence of the Program (1999)

Response	Percent of Sample
Would Install Same Efficiency	51%
Would Not Install Anything	39%
Would Install Less Efficient Equipment	10%
# Responses	*51*

* Does not sum to 41 respondents due to multiple responses by measure.

As is consistent with at least partial Program effects, only 10 percent of those who said that they would have installed the same type or less efficient equipment said that they would have installed the equipment within one year of when they installed equipment under the Program. Table 4-17 illustrates that 30 percent reported that they would have waited over five years to install the equipment in absence of the Program.

Table 4-17
How Long Would Wait Before Installing New Equipment In Absence Of Program (1999)

Response	Percent of Sample
Same Time To Within 1 Year	10%
1 To 2 Years	35%
3 To 5 Years	25%
Over 5 Years	30%
# Responses	*20*

*Includes multiple responses by measure.

4.4 ANALYSIS OF FIRST-YEAR NET SAVINGS IMPACT (FREE RIDERSHIP)

In this subsection we present results of estimated free ridership for the 1999 LNSPC. The free-ridership data can be used to provide an estimate of the percentage of the immediate, gross first-year savings that would have occurred in the absence of the LNSPC Program. The method used to calculate these ratios is based on self-reported information provided by participating customers. This method has been used extensively as part of previous utility program impact evaluations for programs that require site-specific free ridership and net-to-gross calculations.[3]

4.4.1 Caveats to NTGR Calculations

Note that the following important caveats must be kept in mind while considering the NTGRs presented in this report:

- The net-to-gross ratios reported here are based only on free-ridership, that is, the ratios do not include any adjustments for participant or non-participant spillover (thus, the net-to-gross ratio equals 1 minus the free-ridership rate).
- The NTGRs are just one of many factors that must be taken into consideration in assessing the LNSPC Program.

[3] For a discussion of issues related to estimating net-to-gross ratios and free ridership using participant self-reports see *Quality Assurance Guidelines for Statistical, Engineering, and Self-Report Methods for Estimating DSM Impacts*, prepared for the California Demand Side Management Measurement Advisory Committee: The Subcommittee on Modeling Standards for End Use Consumption and Load Impact Models, April 1998.

⇒ In particular, it is important to keep in mind that the NTGRs come out of an impact evaluation framework. We believe that this type of information continues to be useful under the current policy rules, but does not, by itself, answer many of the broader market-effects questions that need to be addressed.

⇒ For customers who are not Self-Sponsors, the NTGRs reported here generally capture the bundled effect of the LNSPC, which includes both the effect of the incentives and the effect of EESPs' marketing efforts and services provided on participating customers' decisions to proceed with energy-efficiency projects. These activities pursued by the EESPs may or may not be affected by the LNSPC Program intervention as well (see Section 2.3.2 for discussion of EESP-related market effects).

⇒ To the extent that EESPs' marketing efforts have not changed because of the Program, these marketing efforts should be considered naturally occurring activities (i.e., activities that would have occurred anyway in the absence of the Program). Thus, if EESP-sponsored customers report that the Program, which is defined to include the incentives and the actions of the EESP, had a strong influence on their decisions, then it is possible that some of what is reported as the positive effect of the Program may actually be attributable to the naturally occurring EESP marketing activities. Conversely, if changes in EESP marketing practices do occur because of the Program, then customer actions associated with these changes (as opposed to changes attributed only to Program financial incentives) need also to be considered in attribution of the Program's total effect on the market.

4.4.2 Methodology Used to Calculate Net Savings

Free-ridership estimates were developed by calculating both weighted and unweighted net-to-gross ratios. The weighting was done to adjust for the effect of the incentive levels for different projects; higher incentives received heavier weighting, lower incentives were weighted less. Initial net-to-gross values were assigned based on information customer's responses to three questions: the *significance of Program incentives* and *EESP services* and *likelihood of installing anyway* questions. The values assigned to each of these questions are shown in Table 4-18.

Table 4-18
Assignment Of Net-To-Gross Ratio Values

Likelihood of Installing Anyway	Assigned Value	Significance of Incentive	Assigned Value	Significance of EESP services	Assigned Value
Definitely Would Not Have Installed	1.0	Extremely Significant	1.0	Extremely Significant	1.0
Probably Would Not Have Installed	0.667	Very Significant	0.667	Very Significant	0.667
Probably Would Have Installed	0.333	Somewhat Significant	0.333	Somewhat Significant	0.333
Definitely Would Have Installed	0.0	Insignificant	0.0	Insignificant	0.0

This method is a further refinement of the 1998 method that only included the *significance of Program incentives* and *likelihood of installing anyway* questions. We believe it is important to recognize that the Program consists of both the incentives and frequently the services provided by the EESP as a result of promoting participation in the program. While a majority of customers reported that the incentives were more important than the services provided by the EESP, the 1999 series of interviews clearly demonstrated that several customers valued the assistance provided by the EESP that happened only as a result of program participation, as critical, but did not necessarily value the incentives highly.

The Program leveraged market changes by both providing the financial incentives and encouraging EESPs to deliver the project services. While the simple correlation coefficient between the two variables was moderate at 0.45, several of the customers differed dramatically in their significance rating of these two factors. For example, three customers rated the incentive as insignificant, but rated the services offered by the EESP as very significant. As indicated in Table 4-19, for those customers who were not sponsors, their answers to the significance questions are highly correlated; that is, when they reported that the incentives played a significant role in their decision, they also reported that the overall value provided by the EESP was significant.[4] For Self Sponsors, the results appear to be somewhat inversely related, that is, respondents are somewhat more likely to say third-party firms are less important when they report that the incentive had a significant effect on their decisions.

Table 4-19
Comparison Of Significance Rating For Incentives Versus Third-Party Firm For EESP-Sponsored Customers (1999)

	Self-Sponsor w/Third Party		EESP-Sponsored	
Significance	Significance of Incentives*	Significance of Third-Party Firm	Significance of Incentives*	Significance of Third-Party Firm
Very Significant (8-10)	33%	0%	35%	53%
Somewhat Significant (3-7)	67%	83%	12%	12%
Insignificant (0-2)	0%	0%	35%	29%
Don't Know	0%	17%	6%	6%
# Respondents	*6*	*6*	*17*	*17*

* Responses for EESP-sponsored customers refer to the significance of the third-party sponsor of record on the LNSPC application, not of any other companies that may be involved in the process.

Based on these data and the interview responses, it appeared that many customers were influenced primarily through one mechanism of the Program (incentive or EESP involvement), but to a lesser extent through the other. This appeared to be reasonable, given that EESPs were likely to vary in how much information they provided to customers about the incentives and that

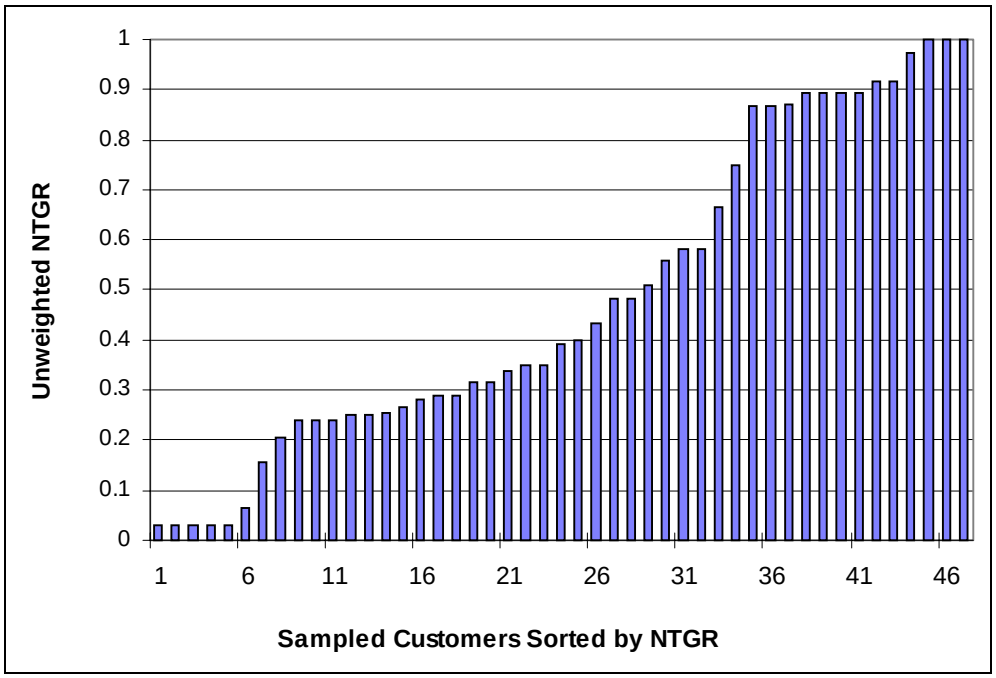
[4] A reminder here of one of the limitations of self-reported data: *customers often have difficulty sorting out the relative weight of numerous possible influences on energy-related decisions*. In particular, one reason for the observed correlation between the high significance ratings of the incentives and EESP may be an actual correlation in that the customers needed the EESPs assistance in order to meet the program requirements and thereby obtain the incentives.

the EESPs were probably likely to stress the incentive less if they provided more comprehensive services to the customers. This is consistent with what most EESPs report; their projects must be financially justified first, and then incentives can be added as an additional benefit (see discussion of EESP results in Chapter 5).

As a result of the above observations and in the interest of being conservative in our estimates, we determined the maximum value of the response to questions about the significance of incentives and significance of EESP services and used that in our analysis to represent the significance of the Program to the customer. This value was then averaged with the "value of the likelihood of installing anyway" question. Other, more minor adjustments were made to account for partial effects, if necessary, based on responses to other questions.

Both the weighted and unweighted estimates involve averaging across individual customer NTGRs that were calculated for each unique customer in the sample. The range of NTGRs calculated across the sampled customers is shown in Figure 4-7.

Figure 4-7
Range Of Unweighted NTGRs Across Sampled Customers/Projects (1999)



* NTGRs for two of the largest customers are included by project.

As can be seen from the Figure 4-7, the NTGRs had a bi-modal distribution with more NTGRs with very low or very high values than middle values. There are no cases with exactly zero NTGR estimates, but in the sample there are three cases of NTGR estimates of 1.0. Thus, in every case, analysis of the responses indicated that the LNSPC had at least partial effect on customers' decisions. This follows from the fact that the majority of respondents fell into the middle of both the significance and likelihood questions. Responses to the "significance of the incentive" question and the "likelihood of installing" question were consistent with the

respondents saying that the incentive was very significant, but also that they definitely would have installed the measures anyway or that the incentive was very insignificant but that they definitely would not have installed the measures in absence of the Program.

4.4.3 Estimates of NTGRs

The unweighted and weighted average NTGRs for the LNSPC are shown in Table 4-20. The unweighted average of the NTGRs is 0.48, while the weighted estimate (which takes into account the size of the incentive in relation to the sampled customers) is 0.53, which is identical to the weighted average NTGR estimate for the 1998 Program. This year, we were also able to weight by kWh, resulting in an average NTGR of 0.51. In either case, it appears that slightly less than half of the projects associated with the LNSPC Program are likely to have occurred in the absence of the Program.

Table 4-20
Overall Net-To-Gross Ratios (1999)

Estimate	Net-to-Gross Ratio (n=47)*
Weighted by incentives	0.53
Weighted by kWh**	0.51
Unweighted	0.48

*Does not sum to 41 respondents due to multiple responses by measure.
**Therm savings were converted to kWh values using a source energy methodology

In addition to estimating the overall NTGRs, we also estimated the figures segmented by whether customers were their own application sponsors. These estimates are shown in Table 4-21. As is consistent with the NTGR results for the 1998 Program, the NTGRs were lower for the customers who Self-Sponsored in comparison with those who came into the Program via a third-party EESP's application. This provides additional support for the hypothesis that the projects with EESPs as third-party sponsors were more likely to have been stimulated by the Program.

Table 4-21
Net-To-Gross Ratios By Customer Type (1999)

Customer Type	Net-To-Gross Ratio (Weighted)	Net-To-Gross Ratio (Unweighted)
Self Sponsor (n=23)	0.42	0.45
EESP-Sponsored (n=17)	0.57	0.51

As mentioned previously, however, these NTGR results should not be confused with whether or not sustainable changes in EESP or customer behavior are occurring as a result of the Program.[5]

4.5 FINANCIAL IMPACT OF PROGRAM PARTICIPATION

In an effort to obtain more insight into the actual financial benefits of the LNSPC Program, participants in the 1999 Program were asked to provide estimates of the average incremental measure costs covered by the Program incentive payments. It proved to be difficult to obtain realistic answers to this question. This seems to be due in part to the fact that some measures would not have been installed in absence of the Program. In addition, customers appeared to have difficulty with the concept of incremental costs. While some customers seemed to include costs associated with Program participation and installation, others did not when providing estimates. Also, different payment arrangements made between customers and EESPs resulted in differences in understanding of the incentives.

Of the 30 respondents who provided estimates, the average incremental cost paid was 35 percent. Three reported 0 percent and two reported 100 percent of the incremental costs were covered by the Program incentives. For the five respondents that broke out their estimates by measure, the differences varied widely. Three reported no or minimal differences (e.g., 30 percent and 35 percent). For example, one customer estimated that the incentives covered 30 percent of a case motor changeout, but 70 percent of a VSD. Another customer estimated 30 percent for the lighting measures and 40 and 50 percent for the two chillers he installed.

Respondents were also asked to estimate the reduction in the payback period attributed to the Program incentives. As indicated in Table 4-22, the incentives were reported to have reduced the payback period by approximately one year. This estimate is reasonable, given the fact that the average incentive amount was 9.3 cents/kWh, which is similar to though somewhat larger than the average rate paid by large customers.

Table 4-22
Self-Reported Payback Estimates with and without Program Incentives (1999)

Payback Type	1999 (Years)
Mean Payback Without Incentives (n=14)	4.2
Mean Payback With Incentives (n=26)	3.2
Difference For Those That Provided Both (n=11)	1.2

[5] Note that this hypothesis, even if substantiated with further research, does not answer the question of whether the change observed is sustainable in the absence of incentives. For example, positive attribution of the effect of the program incentives does not bear on whether EESPs will be able to continue inducing more energy-efficiency projects in the absence of LNSPC incentives.

4.6 PROGRAM PARTICIPANT EXPERIENCE WITH THIRD-PARTY FIRMS

Participating customers were asked a series of questions concerning their experiences with third-party firms, either as the Program-sponsoring EESP in the case of EESP-sponsored customers, or as a contractor hired by the sponsoring customer to help with significant aspects of the Program process.

4.6.1 Reasons For Selecting Third-Party Firm

When respondents were asked the reasons for selecting the third-party firm chosen to sponsor or assist with project work under the Program, no response was clearly dominant. Yet, familiarity or comfort with the contractor appeared to play a more significant role than lowest cost or the specific type of equipment proposed. When asked to give all the important reasons for selecting the third-party firm as sponsor for the Program, the top two answers were the contractor's reputation and experience with the client. When asked the single most important reason for deciding upon which contractor to use, the most common responses were again referring to contractor's prior relationship or referral, followed by competitive bid prices. Table 4-23 provides the range of responses for the most important reason for selecting the third-party firm.

Table 4-23
Most Important Reason For Selecting Third-Party Firm As Sponsor Or To Assist With Project Work

Reason	1998 Participants	1999 Participants	All Participants
Prior Experience With Contractor	15%	33%	24%
Already Had Contract With Them For Other Services	20%	14%	17%
Lower Price/Up-Front Cost	0%	24%	12%
Guarantee Of Or Ability To Get Rebate/Incentive	5%	15%	10%
Equipment Reputation/Recommendation/Efficiency Level	20%	0%	10%
Timeliness Of Response/Equipment Availability	10%	5%	8%
Was Approached By Contractor	0%	10%	5%
Other	25%	0%	12%
Don't Know	5%	0%	2%
# Respondents	*20*	*21*	*41*

4.6.2 Contracting with Third-Party Firms

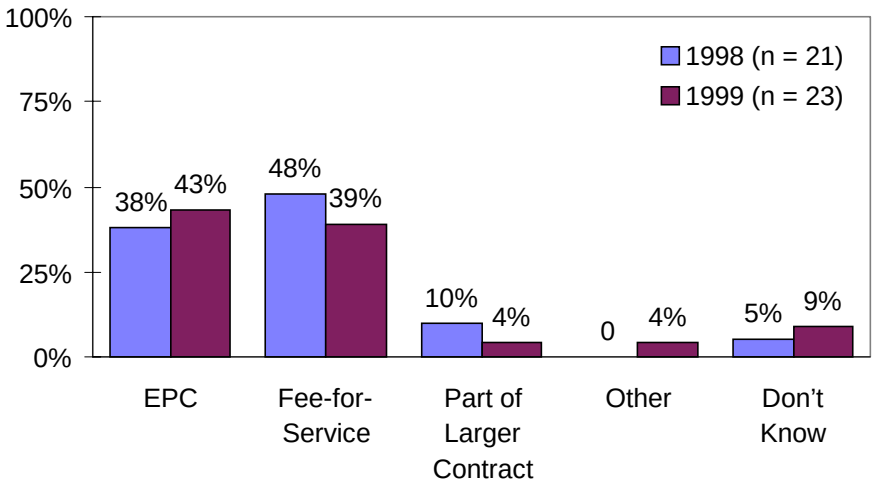
Interestingly, customers in the 1999 Program who chose to sponsor their own projects were less likely to receive multiple bids for their LNSPC project than customers who were EESP-sponsored (17 percent for Self-Sponsors versus 59 percent for EESP-sponsored). On average, just under half (48 percent) of the 1999 LNSPC customers who used third-party firms for a significant portion of the work related to Program application received multiple bids for the project (see Table 4-24).

Table 4-24
Percentage of Customers who Received Multiple Bids For LNSPC Project (1999)

Response	Self-Sponsor w/ Third Party	EESP Sponsored	All Respondents Using Third Party Firms
Yes	17%	59%	48%
No	83%	41%	52%
# Respondents	*6*	*17*	*23*

The breakdown of the different types of contracts is shown in Figure 4-8. Energy performance contracts (EPCs) were only used with third parties by EESP-sponsored customers, where they comprised 59 percent of contractual agreements for this group. Including Self-Sponsors that had significant third-party assistance, EPCs accounted for 43 percent, fee-for-service contracts accounted for 39 percent and other types of contracts accounted for 12 percent of the contracts with third-party firms.

Figure 4-8
Type Of Contractual Arrangement With Third Party Firm For Program*



* Includes EESP-sponsored customers and Self-Sponsors with significant Third-Party assistance.

To gain more insight into the role of performance contracting in the Program, respondents who had an EPC or a performance element to their contract, (e.g., sharing all incentive payments on a percentage basis with the EESP) were asked why they chose that type of contract. Table 4-25 illustrates that while responses varied widely, the most common responses were that the EESP only offered a performance contract (28 percent) and they needed EESP to finance the project (17 percent). Only one respondent mentioned uncertainty over estimated energy savings as a reason for choosing an EPC.

Table 4-25
Reason(s) for choice of an Energy Performance Contract

Reason	1998 Participants	1999 Participants	All Participants
EESP Only Offered Performance Contract	13%	40%	28%
Needed EESP To Finance	13%	20%	17%
Wanted To Share Risk With Third Party	0%	20%	11%
Required To Do It By Superiors	25%	0%	11%
Uncertainty Over Estimates Of Savings	13%	0%	6%
Didn't Trust EESP	13%	0%	6%
Able To Do Upgrades Wouldn't Do Otherwise	0%	10%	6%
Wanted EESP To Commit To Savings	0%	10%	6%
Don't Know	25%	0%	11%
# Responses	*8*	*10*	*18*

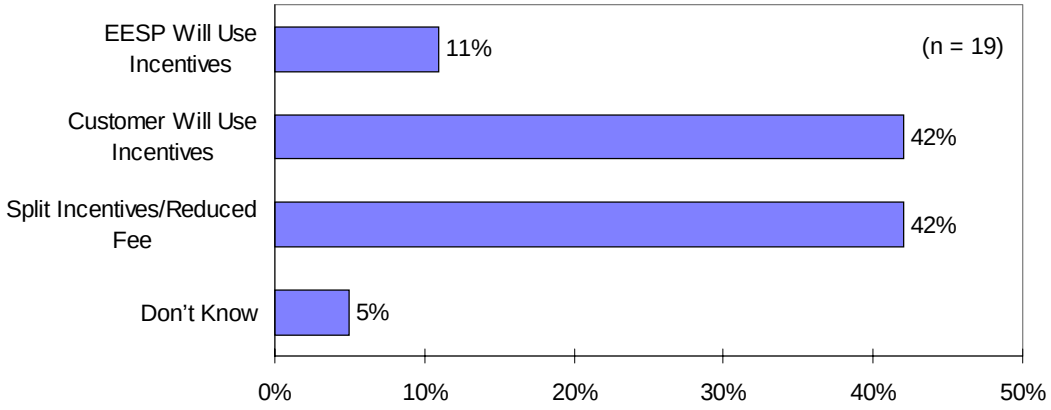
*Multiple responses allowed; 2 responses are from the same source.

Respondents who had a performance element to their contract or an EPC were asked how satisfied they were with the performance contracting elements of their contract. All 14 of the 1999 respondents (7 from 1999 and 7 from 1998) who answered reported they were somewhat or extremely satisfied.

Interestingly, 22 percent of the 1999 respondents whose Program application was sponsored by an EESP said that they were not aware that the EESP receives incentives as part of the Program. However, it appears that the respondents may have been interpreting this question as to who the check was going to be mailed to, as three of the four who said that they were unaware later said that they were either sharing the incentives with the EESP or using it entirely for themselves.

As shown in Figure 4-9, 42 percent of the 1999 respondents reported that they were sharing the Program incentive payments with the third-party sponsor or were receiving a reduced fee for services rendered as a result of the Program incentives. Another 42 percent reported that they were using the incentives entirely themselves. Only 11 percent said that the third-party sponsor would retain all of the incentive payments.

Figure 4-9
Distribution Of Incentives (1999)*



* Includes EESP-sponsored customers and Self-Sponsors with significant Third-Party assistance.

The 1999 respondents were also asked who initiated the contact that lead to the contract for services through the LNSPC Program. As shown in Table 4-26, customers were somewhat more likely than the EESP to initiate contact. Several respondents (16 percent) reported that they already had an ongoing relationship with the EESP chosen.

Table 4-26
Initiator of Initial Contact for SPC Contract Services (1999)*

Initiator	Percent of Sample
Customer Initiated Contact	37%
EESP Initiated Contact	32%
Ongoing Relationship	16%
Other	11%
Don't Know	4%
Total	*19*

*Includes EESP-sponsored customers and Self-Sponsors with significant Third-Party assistance.

Answers to questions about customers' previous exposure to LNSPC project-related services and products are shown in Table 4-27. Almost three-fourths of the respondents (74 percent) said that the products and services provided by third parties for LNSPC projects were not new to them; only 9 percent said that they were new products or services, all of whom had their applications sponsored by an EESP.

Table 4-27
Percentage of Customers Receiving New Services Provided (1999)

Response	Self-Sponsor w/ Third Party	EESP-Sponsored	All Respondents Using Third-Party Firms
Yes	0%	12%	9%
No	100%	65%	74%
Don't Know	0%	12%	9%
# Respondents	*6*	*17*	*23*

Of the 22 respondents of the 1999 Program who answered the question, approximately 55 percent said that they were receiving other energy-related products or services from the EESP they were using as sponsor or to help with the LNSPC Program process. Four of them were having their lighting retrofitted, three had ongoing maintenance or consulting contracts, and two were installing VSDs. Two were also purchasing electricity from the EESP. Other services included installation of a SCADA system and roof installation.

4.6.3 Satisfaction with Third-Party Firms

Overall, respondents were satisfied with the services provided by third-party firms. As shown in Table 4-28, over 80 percent were somewhat or extremely satisfied with the value of the services provided by the third-party sponsor or firm used to assist with the project. No one reported being extremely dissatisfied. Only 8 percent overall (13 percent from 1998 and 0 percent from 1999) reported being somewhat dissatisfied, most frequently commenting on installation problems. However, respondents for the 1999 Program year were somewhat more likely to state that it was too early in the process to evaluate the firm.

Table 4-28
Satisfaction with Overall Value Of Services From Sponsor or Third Party*

Satisfaction	1998 Participants	1999 Participants	All Participants
Extremely Satisfied	42%	53%	46%
Somewhat Satisfied	38%	33%	36%
Somewhat Dissatisfied	13%	0%	8%
Extremely Dissatisfied	0%	0%	0%
Don't Know or Too Early To Tell	8%	13%	10%
# Responses	*24*	*15*	*39*

*Responses for all Third Parties used were recorded, including those used by Self-Sponsors

A sample of responses given from the 1998 participants as to why the company was dissatisfied with the Sponsor/Third Party were:

- "[They] didn't do the follow-up measurements when they had promised. They were supposed to do these three months after the installation of the equipment and they waited until eight months after installation. This delayed the incentive payment…"
- "[The Sponsor] was good at handling the paperwork, but this was work that wasn't useful for the overall project, and that [the installing contractor] could have handled it."
- "[They] did a lousy job installing the equipment. However, they were responsive to [our] complaints and did eventually fix the installation problems."

When respondents were asked whether or not they would recommend (or already have recommended) the Sponsor/Third Party to others, results were overwhelmingly positive (see Table 4-29). Nearly 90 percent said they would, or already have recommended the sponsor/firm. The only other notable mentions were that it was either too early to assess how well the Sponsor/Third Party had done, or the respondent declined to comment (two government agencies said that they have a policy of not recommending or commenting on service providers).

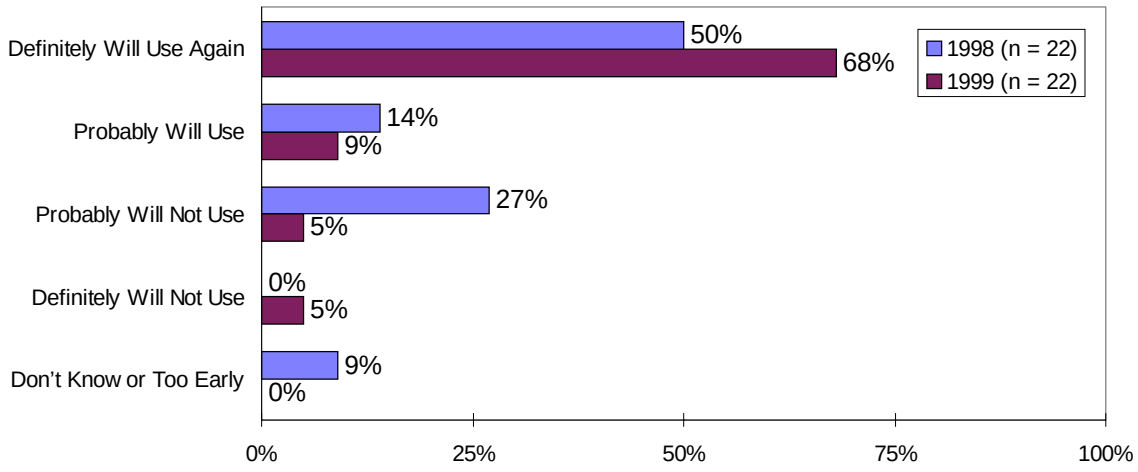
Table 4-29
Percentage of Customers who would Recommend Sponsor or Third Party To Others

Response	1998 Participants	1999 Participants	All Participants
Yes Would Or Have Already	88%	86%	87%
No, Would Not	4%	0%	2%
Decline To Comment*	0%	9%	4%
Don't Know Or Too Early To Tell	8%	5%	7%
Total	24	22	46

*Two government agencies said that they have a policy of not recommending or commenting on service providers.

Customers' plans to use the third-party firms in the future are displayed in Figure 4-10. A large majority of the respondents stated that they would be willing to use the third-party again. Overall, the 1998 Program respondents were less likely to say they probably or definitely will use the third-party firm again. However, only two of those who said they probably or definitely would not use the third-party firm again said it was due to dissatisfaction with the firm. Another two mentioned that there was nothing left for them to do, one said that they did not know what else the firm offered, and one said that they now felt that they had less need to use a third-party as they had become more familiar with the process.

Figure 4-10
Planned Use Of Third-Party Firm(s) In The Future



Respondents were asked if their opinion of ESCOs had changed or stayed the same as a result of the Program. Table 4-30 shows that two-thirds of respondents' opinions had *not* changed as a result of the Program. A quarter of respondents had a more favorable view of ESCOs because of their Program involvement. Only 7 percent of the 1998 and 1999 respondents said their opinion of ESCOs had worsened.

Table 4-30
Effect Of Program On Opinion Of ESCOs

Opinion	1998 Participants	1999 Participants	All Participants
Better As A Result Of Participation	30%	23%	26%
Worse As A Result Of Participation	5%	9%	7%
Opinion Has Not Changed	65%	68%	67%
# Respondents	*20*	*22*	*42*

4.7 PROCESS-RELATED ISSUES

In this subsection we present participant customers' responses to questions concerning various implementation aspects of the 1998 NSCP and 1999 LNSPC Program. These questions were generally asked on an open-ended basis. In some cases we have post-coded responses, while in others we use direct (un-ascribed) quotations in order to allow respondents to speak in their own voices. Also note that the questions asked are, for the most part, an identical subset of the process-related questions asked in our first-round interviews with third-party EESPs presented in Section 5. The topics covered include the following:

- Strengths and Weaknesses of the Program
- Program Forms and Requirements
- M&V Requirements
- Opinions on Administration.

4.7.1 Strengths and Weaknesses of the Program

We began the process part of the interview by asking customers to express what they thought were the strengths and weaknesses of the Program. The ranges of responses were categorized and are shown in Table 4-31 and Table 4-32. The most consistently mentioned statement on the Program's benefits referenced the incentives themselves, which were cited by 21 percent of all respondents. The next most cited benefits were that it provides incentive to save energy, encourages energy efficiency, the third-party help and that it helps sell projects or upgrades to management. Another 7 percent of respondents reported that the M&V helps understanding by tying incentives to savings.

Table 4-31
Primary Strengths Of The Program

Strengths	1998 Participants	1999 Participants	All Participants
Rebate/Incentive	17%	24%	21%
Incentive To Save And Focus On Energy Efficiency	14%	20%	17%
Helps To Sell Upgrades To Management	0%	17%	10%
Third Party Help In Providing Ideas, Handling M&V	14%	7%	10%
M&V Ties Incentives To Savings	7%	7%	7%
Able To Do More Projects Or Sooner	24%	5%	13%
Educational	3%	5%	4%
Improvement Over Earlier Programs	3%	5%	4%
Allows Risk Taking With New Technologies	0%	2%	1%
General Positive Comment On The Program	7%	0%	3%
Other	10%	0%	4%
Don't Know/No Comment	14%	10%	11%
# Responses	*29*	*41*	*70*

*Total does not sum to 100% due to multiple responses.

When discussing their opinions on their perceived weaknesses of the Program, there was more convergence in the responses. Of the respondents who offered opinions on the Program's weaknesses, the most common responses were that the paperwork too detailed, complicated and/or expensive to complete (46 percent), the M&V was too cumbersome (17 percent), they needed a third party to manage it because the Program is so complex (11 percent), or the utility was unresponsive (7 percent). Another 6 percent stated that the process to receive the payments was too long, or that they did not receive enough guidance.

Table 4-32
Primary Weaknesses Of The LNSPC Program

Weakness	1998 Participants	1999 Participants	All Participants
Paperwork Too Complicated, Expensive To Complete	34%	54%	46%
M&V Too Burdensome	14%	20%	17%
Needed Third Party To Manage Because So Complex	7%	15%	11%
Process To Receive Payments Too Long/Delays	7%	5%	6%
Difficult To Do With Multiple Facilities	0%	5%	3%
Not Enough Advertising	0%	5%	3%
Not Enough Guidance	7%	5%	6%
Inflexible Timing (unable to install when needed)	0%	5%	3%
Unresponsive Utility	10%	5%	7%
Can't Ensure We Can Use The Same Company	0%	2%	1%
Not Enough Money	0%	2%	1%
Reduction In Incentive Levels Killed Projects	0%	2%	1%
Shouldn't Have Cap On Rebate	0%	2%	1%
Other/General Negative Comment	10%	2%	6%
Don't know/None/No Comment	21%	15%	17%
# Responses	*29*	*41*	*70*

*Total does not sum to 100% due to multiple responses.

At the end of the interview, respondents were given the opportunity to offer additional comments that may not have been adequately captured by the structured questions. The following quotes represent those comments that are not already adequately reflected in discussions of strengths and weaknesses above or give examples of the multi-faceted comments received:

- "Glad we did it. We probably wouldn't have gone to central plant scenario without Program. Forced us into decisions about our future that we wouldn't have done."

- "Old method where utility administered had too many loopholes, current method is too strict - especially M&V requirements."
- "The Program partially dictates the timing of purchases-not always at the best time of year for the operation of the plant."
- "Would change baseline from Title 24 to what was in place."

4.7.2 Program Forms and Requirements

As shown in Table 4-33, the majority of respondents were content with the payment procedures and timing (64 percent). However, 19 percent of all respondents indicated dissatisfaction. Another 16 percent did not comment, most frequently noting that they had not yet received any money or that the EESP was handling it so they did not have enough information to comment.

Table 4-33
Customer Opinion of Reasonableness of Payment Procedures and Timing

Opinion	1998 Participants	1999 Participants	All Participants
Yes, reasonable	59%	68%	64%
Not Reasonable	28%	13%	19%
Don't Know	14%	18%	16%
# Respondents	*29*	*38*	*67*

A sample of 1998 Follow up end-of-interview comments are provided below:

- "I don't like the whole idea of government/utility taking money away from [customers] then dealing it out based on what they think is best… Industry is concerned about energy costs and will do what they need to reduce energy use."
- "The administrative and paperwork requirements were overpowering and I'd like your [evaluation] study to help change that."
- "It has been a good program and it works. It has been easier than administering other programs. The contractor has handled most of the paperwork and they haven't had to deal with it."
- "The contractors don't always do the best job of following up and the utility should get more involved in terms of making sure that the contractors perform after the sale."
- "The delay in review and approval of the PIRs and the delay in the initial payments were costly".

A sample of 1999 comments follows:

- "Percent [payout of incentives over time] is a good way to do it - makes customers pay attention to the equipment over a two-year period and they are likely to continue to pay attention after the two years have passed."
- "Ensures no hit & run. Reasonable that public funds be handled in this manner. Good check and balance."
- "Reasonable, but wish they didn't require that all sites be completed before the clock starts on the two-year payout."
- "Ridiculous - long, delayed installation took 9 months."

4.7.3 Cost of BPA/DPA submittals

Overall, 17 of the 1998 Program respondents were able to provide estimates of the costs of BPA/DPA submittals. The estimates from the seven 1999 respondents ranged from 1 to 51 percent of the program incentives, with an average of 12 percent. For the 1998 respondents, 10 provided estimates ranging from 1 to 25 percent, with an average of approximately 8 percent. Three respondents noted that the costs were about the same regardless of project size, implying that larger projects were more cost-effective. It is important to note that these figures do not include paperwork at later stages, such as the PIR or M&V reports.

4.7.4 M&V Requirements

Customer respondents were asked several questions about the LNSPC Program's M&V requirements, including questions regarding the following:

- Reasonableness of the M&V requirements
- Status of the M&V process
- Estimated costs of the M&V
- Whether or not they value M&V results enough to pay for them in the absence of a program requirement, as well as the incremental project costs they are willing to pay for M&V
- How uncertain they were about estimated savings at the beginning of the project
- If they plan to use M&V results to promote further energy-efficiency improvements.

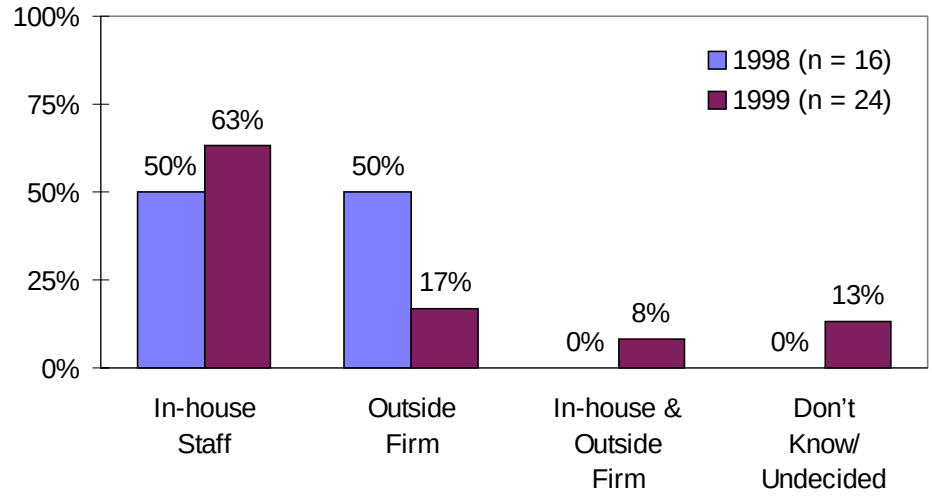
As shown in Table 4-34, approximately 80 percent [6] of the customers were unable to comment on the M&V process, saying that they had no experience either because the EESP was handling it or it hadn't started yet. Another 11 percent reported that it seemed to be going well or as expected. Eight percent gave negative comments most frequently regarding the difficulty or cost of the M&V process.

Table 4-34
Comments On M&V Process

Response	1998 Participants	1999 Participants	All Participants
No Experience, EESP Is Handling It	41%	58%	51%
No Experience, Hasn't Started Yet	21%	21%	21%
Positive/Neutral Comment (See Text Below)	10%	11%	10%
Negative Comment (See Text Below)	7%	8%	7%
In Process Of Collecting Data	14%	0%	6%
Don't Know	7%	3%	5%
# Respondents	*29*	*38*	*67*

Figure 4-11 shows the entity that will be meeting the M&V requirements for the customer Self-Sponsors' projects. Well over half of the respondents stated that they would be doing the work in-house (63 percent). Seventeen percent said they will be utilizing an outside firm for this M&V work, and 8 percent said they would do this using both in-house and outside staff.

Figure 4-11
Staffing Approach To Meeting M&V Requirements For Self-Sponsors



[6] Unfortunately, a much smaller percentage of the 1998 customers had completed the first-year M&V report than had been expected. Some of this is due to late installations (installing as late as November 1999) as well as EESP delays in completion. It is important to note that customers and sponsors have incentive to complete for payment, but there is no penalty if late.

Table 4-35 shows that the majority of all respondents felt that the M&V requirements were reasonable (61 percent). Only 19 percent of the customer sample felt the requirements were not reasonable, most of whom were Self-Sponsors. While approximately 60 percent of the Self-Sponsors felt that the M&V requirements were reasonable, 35 percent felt that they were not reasonable. Only 7 percent of customers with applications sponsored by an EESP reported that the M&V requirements were unreasonable. Note, however, that these customers were significantly more likely to answer, "don't know," often saying that the EESP was handling the M&V. A few of the larger participants with multi-site applications indicated that they believe the M&V requirements should allow more sampling across similar sites. Several respondents who stated that the requirements were reasonable overall noted that they were onerous, but that it was understandable given that the Program requires the savings to be proven in order to receive the incentive.

Table 4-35
Customer Opinions of Reasonableness of the M&V Requirements

Opinion	1998 Participants	1999 Participants	All Participants
Yes, reasonable	69%	55%	61%
Not reasonable	17%	21%	19%
Don't Know	14%	24%	19%
# Respondents	*29*	*38*	*67*

As indicated in Table 4-36, less than half of the respondents had estimated how much the M&V for the Program would cost. The 15 1999 respondents who were able to provide costs estimated that, on average, 19 percent of the Program incentives were expected to be expended on M&V, with a range from 1 to 48 percent. Five of the respondents noted that the M&V costs about the same per measure per site, so only larger projects were cost-effective. Another mentioned that for one measure, he was expending approximately five percent on M&V, while it would cost 25 percent for the other measure. One respondent answered that M&V would cost nothing because it was part of the respondent's job already. Sixteen of the 1998 respondents were also able to provide estimates of M&V costs, which ranged from 1 to 33 percent and averaged 12 percent, and had similar comments as the 1999 group.

Table 4-36
Percentage of Customers who have Estimated how much M&V will Cost

Response	1998 Participants	1999 Participants	All Participants
Yes	54%	45%	48%
No	38%	39%	39%
Don't Know	12%	18%	16%
# Respondents	*25*	*38*	*64*

Overall, 40 percent of the respondents reported that they would be willing to pay for M&V on energy-efficiency improvements in the absence of a program requirement to do so (see Table 4-37). However, the results varied significantly by Program year. The 1999 participants (26 percent) were significantly less likely than the 1998 participants (59 percent) to say that they would be willing to pay for M&V. This may reflect the fact that 1999 participants are not as far along in the M&V process and may not have developed an appreciation for its potential value. It is interesting to note that the 1998 participant percentages are similar to the baseline figures reported for a similar question in Section 6, but the 1999 participant percentages are lower.

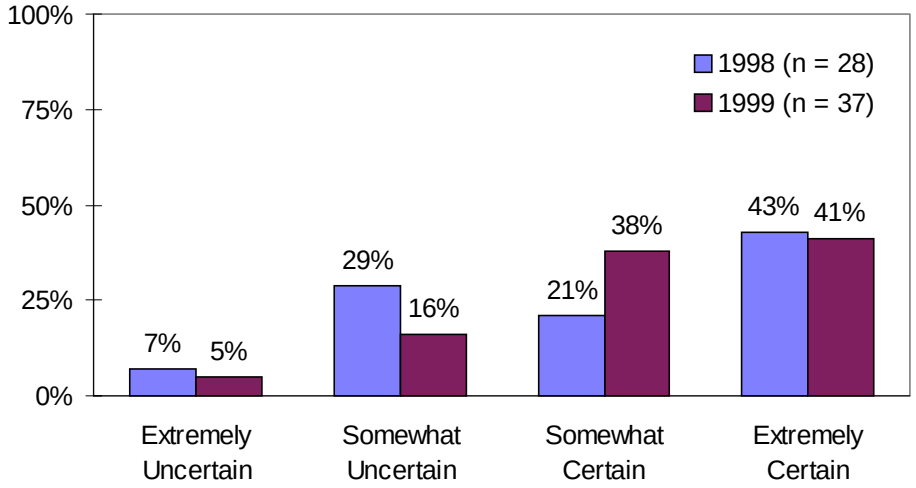
Table 4-37
Percentage of Customers who Value M&V Results Enough to Pay for them

Response	1998 Participants	1999 Participants	All Participants
Yes	59%	26%	40%
Depends	24%	5%	13%
No	7%	53%	33%
Don't Know	10%	15%	31%
# Respondents	*29*	*38*	*67*

Twelve of the respondents from the 1999 LNSPC Program and 24 from the 1998 NSPC Program stated that their organization would or might be willing to pay for M&V. Only a few from both years were able to provide an estimate of how much their firm would be willing to pay, however. Two respondents from the 1999 group gave estimates, one saying 1 percent and the other saying 1 to 5 percent of incremental high-efficiency project costs. The remaining 10 1999 respondents were unable to estimate a percentage or scenario. As for the 1998 group, 15 were able to provide estimates, which ranged from ½ to 10 percent, with a mean of 5 percent. Two gave the answer in terms of the Program, with one saying 10 percent of the incentives and another saying about what he is paying now for the project under the Program (1998). Three of the 1999 participants and six of the 1998 respondents said that some M&V was part of their job already so were unable to estimate an incremental cost. Seven of the 1999 respondents and 12 in the 1998 Program pointed out that the Program M&V is much more stringent than what they would do on their own, however.

Respondents were asked how certain or uncertain they were about the estimated energy savings when they first decided to implement the projects. As shown in Figure 4-12, the 1999 participants were more certain about estimated savings than the 1998 participants. For both "somewhat" and "extremely" certain categories combined, the 1999 group recorded higher values, totaling 79 percent, whereas the 1998 NSPC group's certainty level was 64 percent.

Figure 4-12
Certainty About Estimated Savings



Customers who had their applications sponsored by an EESP were also asked if the fact that the Program required the EESP to have a contract for measured savings with the utility increased their confidence in the EESPs estimates of savings. Over three quarters of the 1999 respondents said that the requirement greatly increased (3 of 17), or somewhat increased their confidence (10 of 17), in the estimated savings. Only 18 percent (3 of 17) said that it had no effect on their confidence, all of whom had said that they were already extremely certain about the estimated savings. Finally, one customer said that the requirement had decreased confidence in the estimated savings. Of the 1998 respondents, 58 percent said that the requirement greatly increased (5 of 19) or somewhat increased (6 of 19) their confidence in the estimated savings. Another 42 percent said that it had no effect (8 of 19).

As the 1998 Program respondents were expected to have more experience with the M&V process, they were also asked an additional series of questions relating to their reactions to the M&V results. However, only seven (24 percent) of the 1998 respondents had actually reached the first-year M&V reporting milestone, three of whom had reviewed the results at the time of the interview. Two reported that the savings were greater than expected, and one said that the results were about what they had expected. This finding is consistent with EESP reports that they used conservative estimates of savings. All three customers who had reviewed the M&V results said that the M&V reports were somewhat or extremely useful and that they were now more likely to pursue the types of energy-efficiency measures implemented through the Program in the future as a result of the M&V results. Two respondents also mentioned that the M&V

results had positively affected their opinions about the third-party firms involved. All of the remaining respondents did expect to see the results in the future.

4.7.5 Opinions on Administration

Customer respondents were questioned about their experiences with the utility or the utility's administrative representatives. As illustrated in Table 4-38, most of the respondents from 1999 and 1998 Programs indicated that their experience was excellent (32 percent) or good (29 percent), while only 11 percent said their experience was somewhat or very poor. Another 8 percent said that they did not have any direct contact with the utility and were therefore unable to comment. One respondent who had submitted applications in all three utility territories rated the experience with one as good, but with the other two as somewhat poor. Positive comments included comments about helpfulness or cooperativeness of utility representatives, timeliness of responses, and positive comments about engineers and managers. Negative comments from respondents included lack of responsiveness or lack of flexibility and that the overall process took too long. Several gave a rating, but mentioned that they worked primarily through their EESP so had little direct experience with the utility. The one respondent who rated their experience as very poor reported that he canceled his contract because the process was too complicated and burdensome to complete, saying, "The M&V was especially problematic."

Table 4-38
Overall Program Experience With Utility

Experience	1998 Participants	1999 Participants	All Participants
Excellent	31%	33%	32%
Good	31%	28%	29%
Acceptable, About What Expected	14%	14%	14%
Somewhat Poor	10%	8%	9%
Very Poor	0%	3%	2%
No Contact With Utility	7%	8%	8%
Other (Multiple Ratings By Utility)	3%	3%	3%
Don't Know	3%	3%	3%
# Respondents	*29*	*36*	*65*

Several customers also commented on the M&V reviewers contracted by the utilities. Three reported that the contracted firm was "inflexible," "not creative," or "our needs don't fit into their little boxes." Interestingly, two of these also said the contracting firm was responsive, just not flexible. One customer commented that the contracted firm just deferred the decision making to the utility, which was slow and unresponsive.

Another three customers commented that the utility was not helpful in developing an M&V plan that would be satisfactory. One reported that the utility contact said, "I have no idea how you would measure…" In one instance, a customer planned to replace an existing 500-hp motor and damper fan controls with a 1000-hp motor and a VSD control system. The contracting firm and utility is requiring the customer to install the 1000-hp motor and run 3 to 4 months without the VSD controls to establish a baseline, after which time the customer may then install the VSD controls. The additional cost of this added substantial cost to the overall project, including the energy wasted by the delay in installation of the VSD as well as the added cost of installing the supporting equipment for the new motor for the baseline period then having to reconfigure for the VSD. In addition, since the installations must coincide with a planned general plant shutdown, the VSD may be installed several months after the 3- to 4-month baseline requirement, increasing the waste and delaying the incentive payment schedule, which is tied to the installation of the VSD.

4.8 PROGRAM EFFECT ON FUTURE ENERGY-EFFICIENCY ACTIONS

As seen in Table 4-39, all but one respondent who had reached the point of installing the energy-efficiency measures were somewhat or extremely satisfied with the measure's performance. The one 1999 Program respondent who was extremely dissatisfied explained that the motor on the chiller went out after two months and that they were arguing with the Program Sponsor to replace it. While all of the 1998 Program respondents had progressed far enough in the process to comment, 35 percent of the 1999 Program respondents said that the measure(s) had not yet been installed.

Table 4-39
Customer Satisfaction With Energy-Efficiency Measures Installed

Satisfaction	1998 Participants	1999 Participants	All Participants
Extremely Satisfied	72%	53%	71%
Somewhat Satisfied	28%	10%	19%
Somewhat Dissatisfied	0%	0%	0%
Extremely Dissatisfied	0%	3%	1%
Don't Know Or Too early To Tell	0%	35%	20%
# Respondents	*29*	*40*	*69*

4.8.1 Dissemination of Program Results

Following the experience of the Program, respondents were asked if they planned to share Program results within their own organization. Nearly 90 percent of all respondents for both years said they *would* spread Program results internally. Most of the information sharing would be by way of informal discussions. A few mentioned that reporting on energy issues is part of their job, so formal reports, newsletters, meetings, and presentations are common.

Table 4-40 shows that the percent of respondents who were willing to share Program results outside of their organization was greater for the 1998 than the 1999 participants. This is probably due to the high proportion of 1999 projects that had not yet been completed. Two-thirds of the 1998 participants interviewed said they would or already have shared Program experience results externally. In contrast, only about 40 percent of 1999 participants plan or have shared results outside of their organization. Of both the 1998 and 1999 groups who would/did share results externally, most of those were through informal discussions. There were a few mentions of presentations or awards from their participation in the Program. For the respondents from the 1999 LNSPC Program said they did not plan to share results externally, some indicated they would if they were asked to (such as for contractor or EESP referrals). A few considered the Program experience proprietary information and would not share with their competition.

Table 4-40
Customer Likelihood of Sharing Program Results Outside Organization

Response	1998 Participants	1999 Participants	All Participants
Yes Would Or Have Already	66%	37%	49%
No, Would Not	3%	53%	31%
Don't Know	31%	11%	19%
# Respondents	*28*	*38*	*67*

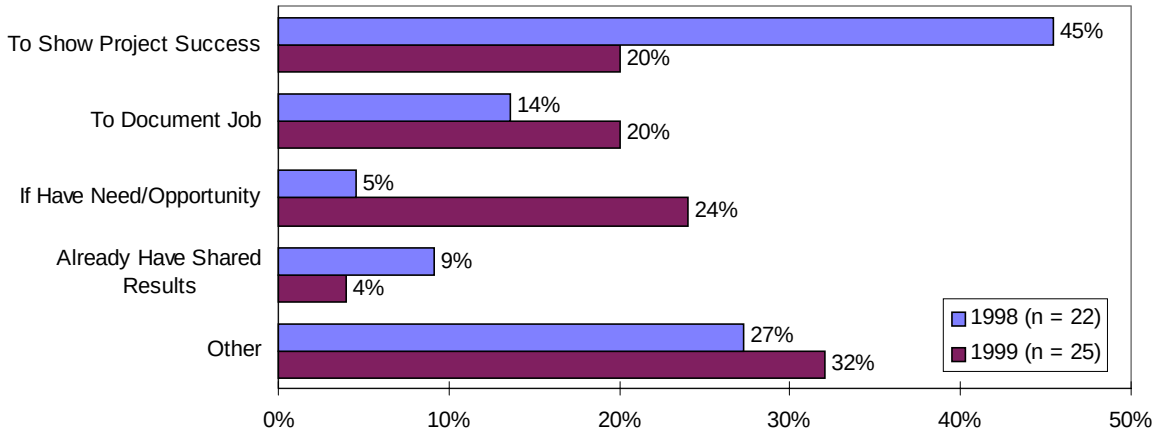
When asked whether they planned to use the M&V results from the Program to sell further energy-efficiency projects, 72 percent answered affirmatively. (See Table 4-41.) The 1998 respondents were somewhat more likely to say that they planned to use the M&V results to promote future energy-efficiency improvements. This may be due in part to the fact that they have more experience with the M&V process, as many in the 1999 Program had not yet completed the M&V process.

Table 4-41
Plans To Use M&V Results To Promote Further Energy Efficiency Improvements

Response	1998 Participants	1999 Participants	All Participants
Yes	79%	68%	72%
No	7%	16%	12%
Don't Know	14%	16%	15%
# Respondents	*28*	*37*	*65*

Respondents were asked how or when they may use their measurement and verification results from the Program measures. A summary of their responses is below, in Figure 4-13. The most common response overall was that they would use the M&V results to show the success of the LNSPC energy-efficiency project when selling other projects. Other common responses were that they would use the results to document the current job, and only if they had a need or opportunity would they share the M&V results.

Figure 4-13
Use Of M&V Results

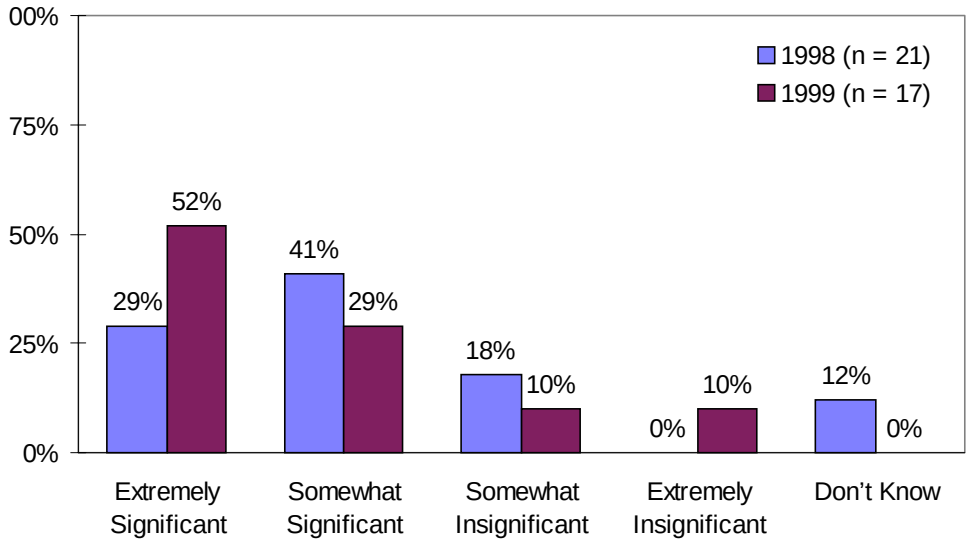


4.8.2 Program Effect on Future Plans for Energy Efficient Measures

Respondents were asked if they planned any additional measures as a result of the Program. Two-thirds of the 1998 respondents and nearly half of the 1999 respondents (58 percent combined) said they planned to implement additional measures as a result of participation in the Program. However, 10 percent of 1998 respondents said there was nothing left to do, and 8 percent of the 1999 respondents said it was either too early to tell or they did not know. Of the 42 percent of 1999 and 24 percent of 1998 respondents who said that they had not planned additional measures as a result of the Program, nine in 1999 and four in 1998 said that they planned to do additional measures regardless of the Program.

Respondents who said they would install additional measures also rated the significance of the Program on their decision to implement additional measures. Between the two years' respondents, 1998 and 1999, approximately 75 percent said that the Program was somewhat or extremely significant in their decision to implement additional measures (see Figure 4-14).

Figure 4-14
Significance Of Program On Decision To Implement Additional Measures



By combining the percentage of customers who said they planned additional measures as a result of their program participation with their assessment of the significance of the program on their decision to install additional measures, we can estimate a qualitative upper limit on the amount of participant spillover associated with the program as: *the fraction saying they will install additional measures as a result of participation (0.58) multiplied by the fraction saying the program was extremely or somewhat significant in this decision (0.78), multiplied by the fraction that were net (non-freerider) participants (0.53), which equals 0.23*. Note that this value has no weight; that is, we do not have quantitative information on the exact number and type of measures or verified evidence of energy savings associated with them. Also, the figure is essentially participants' forecast of future intent; quantifying actual spillover would require verification that the additional measures were installed, estimation of the savings associated with these measures, and reconfirmation of the effect of the program on the decisions. For all of these reasons, the figure should be considered an upper limit on participant spillover. However, even with the caveats above, we can conclude that there is likely to be positive participant customer spillover effect from the program. (For example, if we assume that the actual spillover is half of the maximum possible, the result would be a 10-percent increase in the effect of the program.)

Respondents also were asked whether they were likely to install the future measures even if incentives are not available. As shown in Table 4-42, the overwhelming majority of those who said they would install additional measures said that they would install some or most regardless of whether incentives are available in the future.

As for the sites where additional projects may be implemented, Table 4-43 shows the distribution. Most respondents will pursue projects inside California exclusively, and a few will implement both in and outside of California.

Table 4-42
Plans To Implement Even If Incentives Not Available

Response	1998 Participants	1999 Participants	All Participants
Yes, Most Or All Of Measures	30%	48%	39%
Yes, Some Of Measures	65%	38%	51%
No, None Of Measures	5%	5%	5%
Don't know	0%	10%	5%
# Respondents	*20*	*21*	*41*

Table 4-43
Location Of Additional Projects To Be Implemented

Response	1998 Participants	1999 Participants	All Participants
Inside California	85%	78%	81%
Outside California	0%	4%	2%
Both In & Outside California	15%	17%	16%
# Respondents	*20*	*23*	*43*

4.8.3 Program Effect on Organizational Decision-Making Processes

The survey included a series of questions to assess the effects of program participation on the organizational practices of participating firms. Respondents were asked whether they had policies for the selection of energy-efficient equipment. Sixty percent of the 1998 sample responded positively, but only 40 percent of the 1999 sample reported having policies for selecting efficient equipment.

When asked whether these policies were in place before or after the Program, 80 percent of both Program years responded that policies were in place before. Seven percent of 1999 and 12 percent of 1998 respondents said that the policies were introduced after the Program experience. Thirteen percent of 1999 and 6 percent of 1998 respondents claimed that some policies were in place before, and some were put into action following the Program. Overall, only 7 percent of the respondents said that participation in the program had affected their specification policies in some way. One 1998 respondent said that participation in the NSPC changed how he interprets his payback rules, stating that EESPs can calculate paybacks with different methodologies that can produce different results. Another said that they were developing design standards that would specify equipment model types, and they would be based partly on efficiency and include

manufacturer name(s). One said that they had not considered efficiency retrofits before participation in the Program. Another said participation in the 1998 Program helped them identify, define and specify measures and that they had set lighting standards and established preferences for HVAC improvements.

Only about 20 percent of all respondents indicated that they had any internal reward systems for managing energy costs. Only one respondent reported that an internal reward policy was attributable to participation in the Program.

Respondents were also asked if they had made any other changes in the decision-making process regarding energy-efficiency projects as a result of their participation in the Program. Of the 42 customers who responded to this question, 8 said that they had made changes as a result of participating in the LNSPC. Three said that they changed their specification or implementation procedures to promote more efficient technologies. Another two commented on the value of the information provided on energy usage and costs. Three commented that they would be *less* likely to participate in utility efficiency programs due to the complexity and cost of the paperwork or M&V. In addition, one organization modified their guaranteed savings requirement for performance contracting.

4.9 CANCELLED PROJECTS

To the extent possible, our sampling procedure attempted to screen out projects that had been cancelled or declined by the utility. However, we reached several customers who no longer had active applications. Six customers provided a reason for the cancellation, and in all cases it was the customer's decision. In three cases, the cancellation was due to internal reasons, such as mergers or budgetary issues, and the customers stated they may re-apply at a later date. In the other three cases, the customer complained that the program was "too bureaucratic, too slow," "too complicated," or resulted in stalled projects. In addition, there were several customers we were never able to reach that we later found out had cancelled applications. Unfortunately, we were unable to ascertain a reason for the cancellation in these instances.

5 EESP INTERVIEW RESULTS

This section provides a detailed summary of information collected from in-depth interviews with energy efficiency service providers (EESPs). EESPS play a central role in marketing, developing, and implementing energy efficiency projects and are, potentially, key beneficiaries of the Program. In fact, to the extent that the LNSPC Program seeks to aid in the development of a sustainable market for energy efficiency services, then the EESP may even be considered the primary target market actor for the Program. In this section, we provide an overview of our approach, followed by a summary of key findings and recommendations.

5.1 OVERVIEW AND APPROACH

5.1.1 Combined 1998 NSPC and 1999 LNSPC Participant EESP Sample Frame

An analysis of the program databases, using extracts provided by the utilities in late 1999/early 2000 indicated the following breakdown of EESPs for both 1998 and 1999 shown in Table 5-1.

Table 5-1
Breakdown of Participating EESPs for 1998 and 1999

EESP Participants:	1998 only	1999 only	Both	Total
1998	24	0	9	33
1999	0	24	9	33
Total # of EESPs	24	24	9	57

In undertaking these interviews, we utilized a sampling approach that would capture a broad range of firms and perspectives. We were interested in gaining input from three groups: (1) EESPs that had participated in the 1998 NSPC Program but for some reason chose not to participate in the 1999 Program, (2) EESPs that had only participated in the 1999 LNSPC Program and were thus new to the program in that year, and (3) EESPs that had participated in both years of program implementation and thus might be able to provide a comparison of participation experiences in both years. Another objective of the sample design was to obtain input from the "top 10" EESPs in 1999. Together, these firms accounted for an estimated 89 percent of EESP[1] incentives and a proportional representation of potential energy savings from the Program. Four of the top 10 EESPs also participated in 1998.

As a result, in-depth interviews were conducted with a representative mix of EESPs, including:

[1] 33 unique EESPs reserved funds in PY99; EESP sponsors accounted for $12.1 million of the total $24.2 million in incentives (including customer sponsors) that were reserved for PY99.

- 1998 NSPC-only Participants (did not participate in 1999)—10 interviews
- 1999 LNSPC-only Participants (did not participate in 1998)—4 interviews
- 1998 and 1999 Participants—10 interviews

During this interviewing process, we were able to obtain interviews with each of the top-10 EESPs participating in the 1999 LNSPC Program.

5.1.2 Questionnaire Design

A detailed questionnaire was developed for these interviews, including the following broad topic areas:

- Project history and current status
- Measures being installed
- Process-related experiences
- Program experiences related to measurement and verification
- Program and market effects
- Competitive issues and EESP market trends.

The interviews were predominantly qualitative in nature, focusing on how EESPs were using the Program in their business development activities to identify and assess the potential impact the Program has had or is having in the marketplace for energy-efficiency services. A number of specific and open-ended questions were asked to assess these potential market effects, with substantial emphasis placed upon giving participating EESPs an opportunity to illustrate how the Program was benefiting their firm in a way that would not be possible without the Program.

One area that we were particularly interested in exploring was that of experiences related to installation and use of data collection equipment as required through the measurement and verification (M&V) protocols established in the Program. This area was of particular interest because, at the time of the previous evaluation in 1998, actual experience with the M&V component of the Program was very limited. There was substantially more experience at the time of this evaluation with both the refinement of M&V plans and the installation of required metering equipment. However, as it turned out, there remained only limited experience in the actual interpretation and use of results from these M&V efforts because a number of projects had not yet been installed for a complete year.

Another area of focus was that of information related to the overall program process. Several process-related issues were highlighted during the original 1998 NSPC evaluation, and some changes were made in the 1999 LNSPC Program design. As such, we were interested in exploring whether these issues had been resolved or remained with the Program.

5.1.3 Changes in Status of 1999 LNSPC Projects

Our sampling strategy for the interviews was based upon project applications submitted to the utilities as of December, 1999. In the process of completing these interviews, we discovered that several large projects had, since the end of the year, either been canceled or put on hold until the PY2000 Program. These included:

- An EESP that put on hold all of its eight 1999 LNSPC projects, citing changes in refrigeration incentives and increasing financial pressures within the grocery industry. Together, these projects accounted for just under 20 percent of the statewide incentives reserved for third-party EESPs
- An EESP that canceled a large project, citing customer financing issues
- An EESP that canceled a project due to irresolvable contracting issues between the EESP and its customer.

In the case of the refrigeration projects that were cancelled, there is strong likelihood that these projects will be resubmitted under the PY2000 Program. This is an interesting case because, according to the EESP, changes made for the 1999 Program lowered incentives for refrigeration controls and resulted in the projects not being cost effective for the EESP and customer to pursue. Grouping refrigeration and HVAC controls together for incentive calculation purposes was not considered to be prudent since, from this EESPs perspective, refrigeration controls are more sophisticated and costly than HVAC controls. In an effort to resurrect these projects, this EESP was in discussion with the program administrators to address issues related to the M&V requirements in an attempt to lower the cost of implementing the program M&V requirements. However, since it was perceived to be unlikely that the issues would be resolved in time to meet required program deadlines, the EESP chose to withdraw the projects while retaining the possibility of resubmitting the projects in FY2000.

5.2 MARKET TRENDS AND BACKGROUND INFORMATION

To add context to this presentation of feedback obtained from EESPs, we provide below a discussion of important trends in the EESP marketplace. The trends are as reported by the EESPs themselves. Issues addressed include: staff turnover, how projects are being structured between EESPs and their customers, and the role of financial incentives available through the Program.

5.2.1 Staff turnover

In conducting these interviews, we utilized contact information provided from the utility databases. And, whenever possible, we attempted to recontact the EESP staff with whom we spoke in the original 1998 NSPC evaluation. However, staff turnover at the EESPs we interviewed has been quite high over the past year. In several cases, project contacts had changed. The result is that some of the people interviewed about specific projects had a somewhat limited understanding of the history of the projects and, in some cases, were

themselves just getting familiar with the specific projects. In another case the person we spoke with was recently assigned a new book of accounts and was not aware that there was an LNSPC project that had been approved for his firm. This has potentially significant implications for the practical administration of the projects, and also the likelihood of generating the market effects that policymakers are attempting to achieve with this and other programs.

5.2.2 How are Projects Being Structured?

Detailed information on the structure of contracts between EESPs and their customers is somewhat difficult to obtain because, understandably, EESPs are reluctant to disclose matters that are of strategic importance. Nevertheless, we were able to glean some general insights into the nature of these contractual relationships. As background for interpreting many of the other observations derived from these interviews, we present here a brief characterization of the predominant elements that are present. Three types of arrangements are most commonly used:

- Guaranteed Savings
- Fee-for-service installation
- Traditional performance contract.

Guaranteed Savings

Based upon our discussions, a predominant model is what we, and most industry participants, refer to as a "guaranteed savings" approach. In this approach, the EESP provides customers with a guaranteed minimum level of savings that will result from an installation. A savings tracking account is then established over the life of the guarantee, in which under/over savings are carried over from one year to the next as credits or debits to the tracking account.

The level of savings guaranteed for the customer is typically based upon a very conservative estimate made by the EESP. Along with the guarantee of savings, EESPs will often arrange for financing such that there is no up-front cost to the customer. Since the guaranteed savings are effectively used to meet the financing payments, it is in the best interests of both the EESP and the customer to ensure that savings are readily evident from the project. Measurement approaches used to document the guaranteed level of savings are relatively straightforward, generally involving the documentation of demand reduction and agreed-upon level of use.

The key concept here is that, *if projects are cost effective and attractive to the customer using a conservative estimate of savings and if all parties are confident that the estimate is in fact conservative, then the rigor of the M&V effort does not have to be as high as it might be otherwise.* The focus of the M&V is only to ensure that a minimum threshold has been achieved, rather than a precise measurement of the savings.

Fee-for-service Installations

In this type of arrangement, the EESP proposes to install the project for a customer for a pre-determined fee, with no contingency for actual levels of savings that result from the installation. This approach is particularly used for lighting projects where EESPs feel that providing customers with an estimate of savings for financial benefit-cost analysis is a simple proposition. Again, firms using this approach stress that they use a conservative and intuitive estimate of savings in any financial analyses undertaken for the customer.

Traditional Performance Contracts

Under this approach, a traditional energy savings performance contract is established between the EESP and the customer. This arrangement presents both an upside opportunity and a downside risk for the EESP. Since payments are predicated not on a minimum level of savings, but rather upon the precise level of savings, M&V is a central focus of these contracts. Our original research on the 1998 Program highlighted a movement away from performance contracting, in part because of the costs involved with long term M&V over the life of a contract (typically 10 years). *This trend away from energy savings performance contracting appears to be continuing, with the true performance contracting approach used most frequently with government, hospitals, and other institutional customers*.

5.2.3 Bundling of Commodity and Efficiency Services

There does not appear to be a substantial amount of bundling taking place within the commodity and energy services market in California. One smaller power marketing firm had tried to bundle the LNSPC Program incentives as part of an energy deal they were putting together but decided that this approach was not well suited to the customers' needs. Specifically, they came to realize that they did not have access to the necessary engineering expertise that would be required to complete the project applications and M&V requirements. Additionally, the time frame for getting an application submitted and approved was not compatible with the commodity elements of the negotiation.

Given the infancy of the California and other retail energy markets, we caution that no long-term conclusions on the viability of bundling retail energy commodity and energy management services should be made at this time. The lack of bundling to date may be as much a result of the shifting retail energy landscape as any inherent limitations in the attractiveness of bundled offers. For example, the California retail electricity market structure provided little basis for unregulated retail providers to thrive. Although there is currently a major new wholesale market dynamic in California that may provide new stimulus to prospective retailers, there still remain, in our opinion, a number of structural disincentives to unregulated retail electricity providers in the California market. At the same time, the first signs of potential success at large-scale, highly bundled energy outsourcing are now being witnessed with the recent wave of nonresidential contracts signed by Enron Energy Services. Nonetheless, readers should keep in mind that the Enron's energy outsourcing projects are national in scope and targeted at the very largest electricity users, those with national electric costs of over $20 million.

5.2.4 Role of LNSPC Incentives

In our evaluation of the 1998 NSPC Program, we determined that the bulk of the financial incentives paid to the EESP were passed on to the customer. During the current evaluation, it has become even more apparent that the service of obtaining financial incentives for the customer is generally viewed as a service for the customer that is separate and distinct from the installation of measures. Measure installation and the completion of incentive applications are often even treated as separate projects, with two separate contracts. EESPs charge the customer for their time and effort to complete the project applications, work through the necessary approval processes, set up the M&V, and file M&V results.

With this approach, customers understandably place great emphasis on "getting the incentive," rather than documenting the precise level of savings that are achieved. Again, this represents a marked departure from traditional performance contracting wherein savings are shared between the customer and the EESP, and the documenting of these actual savings is therefore of paramount importance.

While the incentive is often important to making a project happen, this incentive is rarely viewed as being essential. In fact, several EESPs with whom we spoke characterized the incentives as "icing on the cake," referring to the benefits in addition to those that would already normally be associated with the energy efficiency improvement. In large industrial projects, although the incentives are sizeable, they are nevertheless small in relation to the overall scale of operating costs that are being addressed through the efficiency measures. Lighting projects are generally considered to be cost effective on their own, but the program incentives (as are other incentives such as rebates) are seen as being a motivator for customers to take action.

One area where this may be the exception is in the incentives available for refrigeration. EESPs report that the cost effectiveness of these measures tends to be more marginal than other measures and therefore more dependent upon the program incentives. Incentives can be an especially powerful motivator when projects are being fully financed since the customer effectively sees an up-front cash rebate at the time of installation, without any investment outlay.

5.3 PROCESS-RELATED FEEDBACK

A primary focus of these interviews was to solicit feedback from program participants related to their participation experiences with the Program. In this section, we summarize process-related feedback on the following:

- Improvements made for the 1999 LNSPC Program
- Comparison with other programs
- Program applications and forms
- Issues with more technical projects
- Variations in program administration among the utilities

- Utility involvement in program marketing
- Reasons for non-participation.

5.3.1 Improvements made for the 1999 LNSPC Program

EESPS that participated in both 1998 and 1999 acknowledged that the Program had improved in 1999. Some attributed this to perceived changes in the program process while others attributed this to everyone gaining more experience with the Program. Notably, from the interviewers perspective, fewer complaints were heard about the utility administrators and their consultants. Additionally, participants commented on the fact that the consultants seemed more flexible in their approach, and that the utility staff were more forthcoming with assistance to make it through the program process.

5.3.2 Comparison with other Programs

While EESPS were not formally asked to compare their experiences under different types of programs, other programs were often used as a reference point when explaining their levels of satisfaction with the LNSPC Program and identifying ways in which this Program can be improved.

EESPs expressed a preference for the Express Efficiency rebates, primarily for their simplicity from an administrative standpoint and ease of understanding from a customer's perspective. Additionally, EESPs that have participated in the Power Saving Partners (PSP) Program noted that the PSP Program has had a more significant effect in the marketplace than the LNSPC Program has had. This is attributed to two characteristics of the PSP Program: first, the total money available to a single EESP under PSP was greater and firms were effectively guaranteed access to a predetermined level of incentives if they were successful in developing the projects. Second, these monies were available over a longer period of time, thereby allowing EESPs to build this into their revenue projections over a longer period of time and build their business accordingly.

While it was not within the scope of this study to compare the relative merits of alternative programmatic approaches across all key program/policy goals, this is one area that should be considered for further study. Specifically, what are the relative advantages and/or disadvantages, within either a market transformation or resource procurement context, of a rebate program vs. a DSM bidding program vs. an SPC approach?

5.3.3 Program Applications, Forms, and Timeliness

In addition to being generally time consuming, it was reported that numerous redundancies still exist in the various types of paperwork. It was suggested that all forms be re-examined to eliminate any request for information that is redundant with information already provided. Note that program changes made for PY2000 may address many of these issues that EESPs raised.

Issues were also raised regarding the general timeliness of various parties involved in the review and administration tasks of the Program. The prevalence of these issues was not consistent across utilities and was typically related to individual projects. As evaluators, it is simply not possible for us to assess the validity of these complaints. However, to address these concerns in a timely fashion, we suggest that the utilities implement, on their own, a written customer satisfaction survey that can be mailed to all project customers and sponsors *on a quarterly basis* to flag any areas that may be of concern to participants in the Program.

5.3.4 Issues with More Technical Projects

Some respondents emphasized that there are still problems with the Program rules and procedures for industrial projects that are less common and more technically demanding, despite acknowledged gains in the understanding of some utilities' implementation support consultants. This was especially true for industrial-related projects. In one instance, for example, the project manager felt that the M&V requirements were focused toward weather-sensitive loads (such as HVAC) rather than process loads, and he was having a hard time convincing the technical consultants that there was a better (and less costly) method for accomplishing the necessary M&V. Several EESPs believed that consultant staff were not senior or experienced enough to address certain types of projects. This underscores the importance of matching the appropriate level of staff expertise with the complexity of the project, a task that is admittedly not easy to accomplish given the lack (generally) of senior engineers and (specifically) industrial energy-efficiency expertise.

5.3.5 Variations in Program Administration Among the Utilities

Some EESPS that are operating in multiple service areas report that, based upon their experiences, there remain some differences in how the utilities administer the Program. Specific examples were not offered, but issues seemed to center on the variation in levels of scrutiny experienced during the review processes and perceived flexibility in working with the EESP to refine their M&V plans for measures or projects that are similar if not identical.

5.3.6 Utility Involvement

One area we explored during interviews was the relative importance of utility involvement in the business development process. While EESPs are generally reluctant to credit the utility with obtaining business, it was felt that the utilities were helpful in getting a foot in the door with some customers. They were quick to point out, however, that once they were in front of the customer, it was the firm's credentials that sell a project. Utility staff (e.g., marketing and account representatives) were generally viewed as being more helpful in marketing the 1999 LNSPC Program than they had been in the 1998 NSPC Program. During the 1998 NSPC Program, utility account representatives did not always work with EESPs to sell the Program to customers. For the 1999 LNSPC, these same representatives have taken a more active interest in the Program and the benefits customers may receive. This may reflect changes in utilities' perceptions of the appropriate level of activity regulators intended them to have, or changes in actual regulatory intent. According to some industry observers, utilities differed widely in their

interpretation of what level of utility activity was appropriate for the 1998 NSPC given the policy goals and rules emphasized at that time.

5.3.7 Reasons for Non-Participation

Based upon discussions with a limited number of firms that had participated in 1998, but had not participated in the 1999 LNSPC Program, it appears that these firms are likely to fall into one of two categories:

- Firms that have given the Program a fresh examination and plan to use it in PY2000
- Firms that had such negative experiences with the 1998 NSPC Program that they are not at all interested in participating in the future.

Three out of the four 1999 *non-participant* EESPs with whom we spoke indicated that they are *not* likely to participate in the PY2000 Program. These firms have not paid close attention to the changes made in the Program and are basing their decisions heavily upon their 1998 NSPC experiences. Perhaps these firms are not at all interested in the Program and feel that they do not need it to assist in business development. However, to the extent that firms may not be aware of improvements that have been made to the Program, it may be worthwhile contacting these firms to make sure they are at least fully informed of the status of the Program and the improvements that have been made.

5.4 MEASUREMENT & VERIFICATION EXPERIENCES

In general, the EESPs we interviewed either strongly supported or adamantly disapproved of the M&V protocols, with seemingly very little middle ground. Those who are in favor of the protocols feel that they add credibility to their efforts and maintain the credibility of their industry. Those who dislike the protocols claim the requirements are cumbersome and do not reflect the needs of their customers. This latter group, in particular, emphasizes that much less rigorous approaches are used in non-SPC projects and provide sufficient comfort to the customers that they are realizing projected levels of savings. This is confirmed by our findings regarding end-user participants and the customer baseline comparison, which are discussed in Chapters 4 and 6 respectively.

Firms that had participated in the 1998 NSPC Program were in a better position to provide feedback on the measurement and verification protocols than those firms that had only participated in the 1999 Program. However, even for many of these 1998 NSPC projects, the first year data was only recently becoming available. Discussions focused on (1) the types of costs associated with M&V implementation, (2) issues related to M&V enhancing credibility, and (3) the fundamental issue of precision in measurement. These issues are discussed below.

5.4.1 M&V Costs and Complexity

Although most firms acknowledge that an objective of the M&V is to add credibility to the projects, it was also noted that the M&V process is not easy to explain to project stakeholders, company management, boards of directors, and financing entities. Buy-in from stakeholders is essential to project approval, but these parties often do not understand the need for precision and therefore desire a straightforward and intuitive approach toward verifying the level of savings resulting from their investment.

M&V costs are perceived to be so high by some firms that there was mention of (1) firms discouraging customers from participating in the LNSPC Program because of the time and cost associated with M&V, and (2) firms turning down LNSPC-related work because of anticipated complications with respect to the program M&V requirements. Instances were noted where M&V requirements were determined to be too costly for certain measures, the result of which was that these measures were not included within the project application even though they may have been installed.

5.4.2 Specific Costs Associated with M&V

We sought to obtain specific M&V-related cost information from EESPs but were able to obtain only widely-varying percentage estimates; from 15 to 100 percent of projected incentives, with one firm claiming that they were actually going to be losing money on the project due to M&V. Notably, while equipment costs were a main concern during our original 1998 NSPC evaluation interviews with EESPs, equipment costs were not the major source of discussion among EESPs during this round of interviews. M&V costs were thought to be relatively higher for refrigeration measures, control measures, and custom measures (e.g., industrial applications). Costs in these instances were increased somewhat by the methodology but also by the simple fact that each case is unique and requires a customized M&V plan that must be approved by the program administrators and their technical consultants.

A number of other issues were raised, however, all of which have a direct impact upon the M&V costs perceived by the EESPs and their customers.

- **Number of data points.** The number of data points has a tremendous impact upon overall cost. However, in addition to the initial capital outlay for equipment and installation, the number of data points has ripple effects in terms of maintenance and analysis (discussed below).
- **Semi-permanent nature of installation.** Since all metering needs to remain in place for a minimum of two years following installation, the installation becomes semi-permanent and is treated as such for code and permit purposes. As such, wiring must be run in conduit and meet all necessary code requirements, thereby increasing the overall installation cost.
- **Maintenance of data points.** Ensuring a steady and consistent stream of data across a wide range of data points is also a challenge. Lighting loggers, for example, have been

removed in offices as a result of both theft and space re-configurations. Until these changes are discovered, data are lost and must be re-constructed (or the M&V monitoring time period extended) to meet the requirements specified in the M&V plan. One firm noted that they had spelled out clearly how they would deal with lost data issues if they arose, and this seemed to save them time and money.

- **Maintenance of data points across large geographic areas.** Maintenance is also an issue when a large number of sites are distributed over a wide geographic area. Since there is a desire to minimize lost data, these issues are typically addressed right away, thereby making it unlikely that they can be addressed within a routine maintenance framework. Addressing issues at some sites may entail significant travel (including an overnight) in addition to time spent on-site installing and calibrating new equipment.
- **Data interpretation and reconciliation.** Accounting for variations in data can also be problematic, especially when many data points are involved. If demand profiles change markedly for an extended period of time, for example, then this must be explained and reconciled with the rest of the recorded data to calculate an accurate energy savings estimate.

5.4.3 M&V: To What End?

In discussing the M&V approaches used by the firms interviewed, it became apparent that the type of contractual arrangement between EESPs and customers (discussed earlier) provides a critical link to understanding EESP perspectives on the M&V. Recall that, earlier, we described the "guaranteed savings" approach that is widespread among EESPs. EESPs have, apparently, decided that this type of arrangement is often a preferred business model because it eliminates the cost of measurement over time and the necessary reconciling of observed variations to ensure a precise payment. Under this approach, the key is to ensure a minimum level of savings—a level of savings that ensures the project is cost effective for the customer's investment. With this type of arrangement in place, the purpose of M&V becomes one of documenting that a conservatively estimated *minimum* level of savings has in fact been achieved. The precise level of savings is not important in this context—only a minimum threshold. The program-related M&V protocols, however, are oriented toward an exact estimate of savings rather than documenting that a minimum threshold has been met.

Documenting a minimum achieved threshold is a much simpler task than documenting the precise level of savings. Often the process is relatively informal, using pre- and post-installation demand measurements, combined with agreed-upon hours-of-use estimates, to calculate a kWh savings. *Importantly, in the dynamics of this process, both the EESP and the customer have incentives to lower their estimates to ensure that they have not over-estimated the return on the investment.* Several EESPs stated that they do not understand why program administrators require well-above-market M&V levels if market-based approaches meet customer risk needs, and if project cost-effectiveness from a TRC perspective is still ensured at this minimum level.

5.5 POTENTIAL MARKET EFFECTS

As noted above, care was taken in developing the interview guide to include both specific and open-ended questions that would provide an opportunity for us to identify tangible effects that the Program has had in the market for EESP services. Particular emphasis was placed upon identifying ways in which the Program may have aided in the development of new business areas and/or products and services offered by EESPs.

5.5.1 Few Direct Market Effects Offered

Although there are exceptions, the majority of firms interviewed could not cite any effects that the Program is having on their firm or the broader marketplace. Reasons offered for this include:

- The LNSPC Program represents a small part of their overall business volume (i.e., most are only doing a small number of SPC projects in a year).
- Many of the firms participating in LNSPC are already established firms and have ongoing work with or without LNSPC projects.
- Some firms prefer to do non-LNSPC related projects when given the option.

Major exceptions to this fall into two categories: (1) firms that have worked as subcontractors to other larger EESPs and are trying to become more full-service, and (2) firms that have tailored their business model to the LNSPC Program.

In the first category of exceptions, there are a handful of firms that have worked with larger EESPs in the past and who are now attempting to develop projects in which their firm is the sponsor working directly with the customer. These firms, typically lighting installation and maintenance firms or M&V engineering firms, have thus far experienced mixed results in their attempts. Within the second category, some of the largest participating EESPs in the Program have effectively tailored their business models to fit within the design of the LNSPC Program.

5.5.2 Proximate Indicators of Market Effects

Proximate indicators of potential market effects that were mentioned by participating EESPs include:

- One EESP noted that, although their project would have gone forward in absence of the incentive, the fact that there was LNSPC money available enabled the funding of a comprehensive facility audit that has, in turn, led to additional work.
- Another EESP felt that their program experience has allowed them to gain experience using new EMS systems and understand the capabilities of these systems as a demand management tool. This experience has, in turn, enabled them to market their services in this area more convincingly and set up processes and load profiles for customers to manage their energy use better.

- Add-on work resulting from the fact that M&V equipment is installed (control systems and maintenance work).
- One firm credited the Program with helping significantly in their efforts to penetrate the industrial market.

5.5.3 Potential Negative Market Effects

There is some evidence to indicate that the M&V requirements may actually restrict the ability of the Program in promoting innovative projects. Instances were cited by EESPs in which measures requiring complicated M&V were either dropped from projects altogether or installed but not included in the project incentive application. This appears to be especially prevalent among control strategies.

It was also noted by some EESPs, that participating in the Program may, in some cases, be viewed as a cost. These firms emphasize that there is an opportunity cost to participating in the Program. Examples include:

- One lighting firm discourages customers from participating in the Program because, from their perspective, customers are better off installing efficiency measures today and reaping the savings from these measures immediately, rather than submitting an application under the Program and waiting for the necessary approvals and delayed incentives that would be received.
- One firm specifically noted that they have a company policy stating that all projects must stand on their own merit *before* any incentives can be taken into account. From their experience, relying upon an incentive is not always a good thing since these incentives may change or no longer be available.
- Yet another firm highlighted their perception that relying upon a program such as LNSPC introduces another party into the project—a party with its own contracts, its own set of requirements, and (perhaps most importantly) its own time schedule and constraints.

5.5.4 Examples of Innovative Projects

It is not clear, however, if the LNSPC approach is entirely compatible with innovation. There were specific cases of innovative applications (most often controls) in which EESPs noted that they decided not to apply for LNSPC incentives because of the complexity of the M&V requirements. Nevertheless, several examples of innovative projects were identified during these interviews. While some of these involved innovative technologies, others involved innovative markets that have previously not been targeted with energy efficiency measures. Case study analyses of some of these projects may shed light on how the how the LNSPC approach helps or hinders the advancement of such innovative projects.

6 CUSTOMER BASELINE RESULTS

In this section, we present results from interviews conducted with a sample of nonresidential firms in California and throughout the country. The purpose of conducting the interviews was to obtain baseline information on topics relating to a variety of establishment and energy efficiency characteristics, behaviors, and attitudes. The objective of this survey was not only to characterize the current market, but also to assess market indicators that can be re-measured in the future to determine whether any changes have occurred in the marketplace that might be attributable to the LNSPC or related programs.

This section is organized into the following subsections:

- Summary of Sampling Process (Section 6.1)
- Establishment Characteristics (Section 6.2)
- Familiarity with and Use of Energy Performance Contracting (Section 6.3)
- Energy Program Awareness, Participation & Efficiency-Related Improvements (Section 6.4)
- Energy-Related Decision Making (Section 6.5)
- Awareness and Assessment of Specific Types of Energy Service Providers and Service Offers (Section 6.6)

The baseline survey instrument is provided in Appendix C. In order to facilitate cross-referencing of the results with the survey instrument, the survey question number is included in parentheses in each of the tables and figures presented in this section.

6.1 SUMMARY OF SAMPLING PROCESS

The sample for the baseline surveys was designed principally to characterize the large customer market (over 500 kW) more explicitly than did the previous 1998 Study, which focused on the entire nonresidential market. The rationale for this is that, by definition, the previous study sought to characterize the *entire* nonresidential population. Thus, the current Study includes some indicators specific to large customers who were not included at all in the previous study.

The customers in the population that were included in the sample were mapped by primary SIC code into seven major business type sectors, with an emphasis on industrial categories. These business types were selected based on which segments comprised the majority of the large customer load among the three major electric utilities. The business types included in the sample are as follows:

- Office
- Institutional

- Other Commercial
- Industrial: Electronics/Machinery
- Industrial: Petroleum/Plastics
- Industrial: Mining/Metals/Stone/Glass
- Industrial: Other.

Each business type was divided into three size strata: (1) small (500 to 1,000 kW), (2) medium (1,000 to 2,000 kW), and (3) large (over 2,000 kW).

The California population frame of interest for this analysis comprises the SCE, SDG&E, and PG&E service territories. The non-California comparison sample comprises the lower 48 United States with California subtracted. Table 6-1 presents energy consumption for the population of commercial and industrial accounts in the three utility service territories in California with greater than 500 kW demand by sector. Table 6-2 presents the number of accounts in each cell.

Table 6-1
Energy Consumption by Business Type and Size (GWh)

	Size in Peak kW				
Business Type	**500-999**	**1,000-1,999**	**>2,000**	**Total**	**% of Total**
Office	1,687	1,404	1,977	5,098	11%
Institutional	1,364	1,424	2,923	5,661	12%
Other Commercial	4,315	3,014	5,590	13,618	29%
Electronic & Machinery	969	849	2,667	4,575	10%
Mining, Metals, Stone, Glass, Concrete	407	565	4,904	5,769	12%
Petroleum, Plastic, Rubber and Chemicals	626	988	2,815	4,187	9%
Other Industrial & Agricultural	1,945	2,181	5,055	8,856	19%
Total	*11,313*	*10,425*	*25,931*	*47,764*	*100%*

Table 6-2
Number of Accounts by Business Type and Size

	Size in Peak kW			
Business Type	**500-999**	**1,000-1,999**	**>2,000**	**Total**
Office	677	272	142	1,091
Institutional	664	272	195	1,131
Other Commercial	1,959	760	424	3,143
Electronic & Machinery	325	134	88	547
Mining, Metals, Stone, Glass, Concrete	168	104	114	386
Petroleum, Plastic, Rubber and Chemicals	214	141	77	432
Other Industrial & Agricultural	716	368	255	1,339
Total	*4,723*	*2,051*	*1,295*	*8,069*

To ensure that we collected data from a representative distribution of California customers, we used a sample design that allocated customer interviews uniformly to cells defined by customer size and type. This design sought to distribute 350 interviews among 21 strata (3 size categories by 7 customer types), or roughly 17 customers per stratum. The non-California sample design allocation was identical. The surveys were administered in the spring of 2000. A total of 349 California surveys and 350 non-California surveys were completed. The distribution of the actual surveys completed, by utility and business type, is shown for both markets in Table 6-3. Overall, the baseline survey reached 4.3 percent of the population of firms in California with over 500 kW in demand. Table 6-4 shows the number of completed interviews by business type and customer size in California.

Table 6-3
Distribution of Completed Surveys by Utility/Region and Business Type

Business Type	PG&E	SCE	SDG&E	All CA	Out of State
Office	24	23	8	55	45
Institutional	25	20	8	53	49
Other Commercial	26	22	9	57	48
Electronic & Machinery	20	23	8	51	52
Mining, Metals, Stone, Glass, Concrete	16	18	2	36	53
Petroleum, Plastic, Rubber and Chemicals	16	22	1	39	52
Other Industrial & Agricultural	26	24	8	58	51
# Respondents	*153*	*152*	*44*	*349*	*350*

Table 6-4
Distribution of Completed Surveys in California by Business Type and Size

	Size in Peak kW			
Business Type	**500-999**	**1,000-1,999**	**>2,000**	**Total**
Office	17	20	18	55
Institutional	19	17	17	53
Other Commercial	20	17	20	57
Electronic & Machinery	17	18	16	51
Mining, Metals, Stone, Glass, Concrete	15	10	11	36
Petroleum, Plastic, Rubber and Chemicals	16	16	7	39
Other Industrial & Agricultural	17	22	19	58
Total Accounts	*121*	*120*	*108*	*349*

The results reported in this section are weighted based on energy consumption. Weights were constructed such that the sum of the weights for all customers interviewed within a stratum equal the total energy consumption for that stratum. The sum of the weights used for each stratum in the non-California sample were the same as those in the California sample. This ensured that results were normalized for business type and size differences that might exist between the California and non-California populations.

6.2 ESTABLISHMENT CHARACTERISTICS

As shown in Tables 6-5 and 6-6, the facilities inside and outside California were similar in size, yet California firms were more likely to have fewer employees. Facilities in the SDG&E territory were the smallest on average. The largest facilities were most likely to be located in the PG&E territory. The size by business indicated that office and institutional facilities averaged the largest square footage, while industrial utilities were more likely to be less than 500,000 square feet.

Table 6-5
Square Footage Of Facility (QEC2) (weighted)

Response	500 - 1000 kW	1000 - 2000 kW	>2000 kW	All CA	Out of State
Less than 25,000 square feet	7%	15%	10%	10%	19%
25,000-99,999 square feet	22%	18%	15%	17%	14%
100,000-199,999 square feet	31%	20%	21%	23%	17%
200,000-499,999 square feet	18%	26%	16%	19%	17%
500,000-1,000,000 square feet	12%	9%	16%	13%	15%
Over 1 million square feet	4%	1%	6%	5%	3%
Don't Know\Refused	6%	11%	16%	12%	13%
# Respondents	*121*	*120*	*108*	*349*	*350*

On average, non-California facilities had a larger staff than instate facilities. About 85 percent of the facilities within California and 79 percent of the facilities outside the state had less than 1,000 employees. As would be expected, energy demand is correlated with number of employees. While 97 percent of facilities with 500-1,000kW demand in California had less than 1,000 employees, only 81 percent of those over 2,000 kW in demand had less than 1,000 employees. (See Table 6-6.) Consistent with facility size trends, office and institutional facilities where most likely to have over 1,000 employees, while industrial facilities were most likely to have less than 500.

Table 6-6
Number Of Employees At Location (QEC7) (weighted)

Response	500 - 1000 kW	1000 - 2000 kW	>2000 kW	All CA	Out of State
0 to 25	19%	22%	9%	14%	9%
26 to 100	14%	13%	26%	20%	17%
101 to 250	38%	24%	23%	27%	15%
251 to 500	20%	16%	15%	16%	21%
501 to 1,000	6%	12%	8%	8%	17%
1,001 to 2,000	<1%	7%	6%	5%	7%
2,001 to 10,000	1%	2%	10%	6%	7%
Over 10,000	0%	0%	3%	2%	2%
Refused	0%	0%	0%	0%	<1%
Don't Know	2%	4%	<1%	1%	4%
# Respondents	*121*	*120*	*108*	*349*	*350*

Table 6-7 presents some additional firmographic data comparing the California and non-California samples on an energy-weighted basis. As the table indicates the responses for both California and non-California firms are similar in terms of key firm characteristics.

Job Title. Respondents were most likely to be facilities or production managers or their assistants. The non-California interviews were somewhat more likely to be conducted with financial or administrative staff. Approximately 11 percent of the interviews involving the largest firms were conducted with energy managers.

Facility Ownership. Both the California and non-California establishments interviewed were likely to own their facility. However, California firms with over 2,000 kW in demand were most likely to own at least a portion of their facilities (82 percent). The larger the establishment, the more likely they were to own as well as lease a portion of their facilities. Note that for customers with less than 500 kW peak demand, an average of only 50 percent own their facilities. (XENERGY, 2000)

Institutional facilities (93 percent) were the most likely to own all of their facilities, while approximately 60 percent of industrial facilities owned their facilities, and another estimated 10 percent owned part and leased the remainder of their facilities. Interestingly, industrial electronics/machinery plants (29 percent) were somewhat more likely to only lease their facilities. This is due primarily to their tendency to either own or lease, but not do both, as was more common with other types of industrial facilities.

Payment Arrangements for Leased Space. On average, 20 percent of California firms and 23 percent of non-California firms interviewed leased all of their space. However, California firms (92 percent) were significantly more likely than non-California firms (78 percent) to pay their own electric bill. Non-California firms were more likely to have the energy costs broken out as a separate line item on the lease.

Average Monthly Electric Bill. The California and non-California firms reported similar average monthly electric bills; 48 percent of non-California firms reported monthly electric bills less than $50,000 compared to 44 percent of California firms. Overall, the larger the firm's energy demand, the larger the size of the reported bill.

There appears to be inconsistency with a number of reported energy bill averages as compared to demand. A small percentage of the smallest establishments in terms of energy demand reported bills over $250,000 and some of the over 2,000 kW firms reported bills less than $10,000 a month. This phenomenon has been seen in other baseline studies and is not a cause for undue concern, as the majority of respondents appear to have estimated their electricity costs appropriately. Also, it is important to note that about one-fourth of the California firms were unable to provide an estimate of their bill. It is unclear if these discrepancies are due to misunderstanding the question, such as month versus year reporting or reporting by site breakdown different than how our sample was created (e.g., a respondent giving the energy cost for a single building, when our sample reflects the

Table 6-7
Characteristics of Surveyed Establishments (weighted)

Characteristic	500 - 1000 kW	1000 - 2000 kW	>2000 kW	All CA	Out of State
Job Title Of Respondent (SC1)					
Facilities/Production Manager	57%	50%	57%	55%	62%
Energy Manager	4%	5%	11%	8%	8%
Other Facilities Management/Maintenance	19%	32%	23%	24%	10%
Chief Financial Officer	0%	1%	0%	<1%	1%
Other Financial/Administrative Position	15%	6%	4%	7%	15%
Proprietor/Owner	<1%	1%	0%	<1%	<1%
President/CEO	3%	1%	4%	3%	2%
Other	2%	5%	1%	2%	3%
Own or Lease Facility (EC3)					
Own	71%	68%	69%	69%	71%
Lease/Rent	27%	24%	15%	20%	23%
Both Own and Lease	1%	6%	13%	9%	4%
Refused	0%	0%	1%	1%	1%
Don't know	1%	2%	2%	2%	1%
Type of Payment Arrangement, Leased Space (EC4)					
Pay All Of Electric Bill	93%	80%	97%	92%	78%
Pay None Of Electric Bill	2%	15%	<1%	4%	19%
Refused	0%	4%	0%	1%	0%
Don't know	5%	0%	3%	3%	3%
Energy Separate Line Item, Leased Space (EC4a)					
Yes	0%	30%	0%	25%	44%
No	100%	45%	0%	51%	47%
Don't know	0%	25%	100%	24%	10%
Average Monthly Electric Bill (EC5)					
$1-$10,000	19%	9%	16%	15%	21%
$10,001-$25,000	32%	13%	6%	14%	13%
$25,001-$50,000	13%	26%	12%	15%	14%
$50,001-$100,000	7%	15%	21%	16%	9%
$100,001-$250,000	4%	1%	7%	5%	8%
>$250,001	7%	6%	12%	9%	4%
Don't Know\Refused	20%	30%	24%	24%	30%
Type Of Facility Location (EC6)					
Only Site	29%	28%	22%	25%	22%
Multiple Sites	71%	72%	78%	75%	78%
# Respondents	*121*	*120*	*108*	*349*	*350*

demand for the entire complex, would underestimate the bill). It is also possible that respondents who over estimated their bills are actually reporting total utility costs, rather than electricity only.

Single or Multiple-location Establishments. Single-location establishments accounted for about one-fourth of the energy use and represented from 22 to 29 percent of the firms in each size category. Single-location establishments were more prominent in the less than 2,000 kW strata.

6.3 FAMILIARITY WITH AND USE OF ENERGY PERFORMANCE CONTRACTING

This subsection discusses awareness and experience with energy performance contracting (EPC).

6.3.1 EPC Awareness

For the 1999 evaluation, a question was added to the survey used previously to assess respondents' familiarity with energy performance contracting. As shown in Table 6-8, 39 percent of the firms reported that they were unfamiliar with EPC. As would be expected, the firms with over 2,000 kW demand were more likely than smaller firms to be familiar with EPC. Institutional (83 percent) and office (76 percent) facilities were the most likely to be familiar with EPC. Industrial firms (41 percent), with the exception of electronics/machinery firms (76 percent), were least likely to be familiar with EPC.

Table 6-8
Familiarity With Performance Contracting (QPC1) (weighted)

Response	500 - 1000 kW	1000 - 2000 kW	>2000 kW	All CA	Out of State
Very Familiar	21%	24%	24%	23%	27%
Somewhat Familiar	35%	26%	34%	32%	24%
Unfamiliar	41%	46%	36%	39%	46%
Don't Know	3%	4%	7%	5%	3%
# Respondents	*121*	*120*	*108*	*349*	*350*

6.3.2 EPC Offers

Table 6-9 shows that over one-fourth of the respondents reported that they had been solicited with a performance contract within the past year. Larger firms were somewhat more likely than smaller firms to have been approached. While other commercial and industrial metal/mining firms were least likely to have been approached, half of the California industrial electronics/machinery firms we interviewed had been solicited with an EPC.

Table 6-9
Firm Solicited With Performance Contract In Past Year (QPC3) (weighted)

Response	500 - 1000 kW	1000 - 2000 kW	>2000 kW	All CA	Out of State
Yes	24%	27%	30%	28%	29%
No	73%	65%	62%	65%	64%
Don't Know	3%	8%	8%	7%	6%
# Respondents	*121*	*120*	*108*	*349*	*350*

6.3.3 EPC Accepted

In almost three-quarters of the cases in which firms were offered an EPC, a presentation or formal proposal were made to the customer. Formal proposals occurred only about one-third of the time, however. Of the California firms who had been solicited with an EPC, 13 percent had negotiated and signed a contract, virtually all of whom were in the over 2,000 kW category (see Table 6-10). Thus, a net total of 3.6 percent of customers reported signing a performance contract (28 percent offered x 13 percent of those offered signed).

Table 6-10
Outcome Of Performance Contract Solicitation (QPC4B) (weighted)

Response	500 - 1000 kW	1000 - 2000 kW	>2000 kW	All CA	Out of State
Had Presentation -No Proposal Requested	45%	34%	38%	38%	32%
Asked For And Received Formal Proposal	43%	42%	30%	35%	39%
Tried, But Failed To Negotiate Contract	8%	13%	2%	6%	5%
Negotiated and Signed Contract	1%	1%	20%	13%	16%
Don't Know	3%	10%	10%	8%	7%
# Respondents	*28*	*34*	*39*	*101*	*98*

6.3.4 Reasons for Entering and Not Entering an EPC

Only 11 California firms provided reasons they had entered an EPC, of which 6 reported that they accepted the contract because the third-party firm had guaranteed the savings. Another two each said that they needed third-party assistance or that there was no or very low cost. One respondent mentioned that they did it because of a utility incentive. Sixteen non-California firms responded, half of which said that the contract offered the opportunity to save on energy costs with no or low cost/capital outlay to them.

Consistent with the 1999 Baseline results, both California and non-California firms gave the same two most common reasons for not entering an EPC, either stating that the proposal did not meet internal criteria (16 percent in California, 19 percent non-California), or they could do the project more cheaply in-house or without using an EPC (14 percent in California, 19 percent non-California). (Refer to Table 6-11) It is also important to note that 7 percent of the California firms

and 11 percent of the non-California firms reported that they were not convinced by the third party of the estimated savings or the reliability of the third-party firm.

Table 6-11
Reasons Customers Did Not Sign Performance Contract (QPC5A) (weighted)

Response	500 - 1000 kW	1000 - 2000 kW	>2000 kW	All CA	Out of State
Not Convinced By Third Party	7%	7%	7%	7%	11%
Did Not Meet Internal Criteria	3%	27%	17%	16%	19%
Not Yet Decided	7%	2%	14%	10%	14%
Lack Of Funds	15%	6%	0%	5%	9%
Not Necessary, Insignificant Savings	4%	1%	12%	8%	9%
Inappropriate Timing	8%	12%	2%	6%	0%
Can Do In-House Or With Firm Without EPC	11%	10%	16%	14%	19%
Other	39%	29%	29%	31%	18%
Don't Know/Refused	5%	6%	2%	4%	1%
# Respondents	*26*	*27*	*28*	*81*	*78*

Approximately 84 percent of the industrial petroleum/plastics firms felt that they could do the project in house or without an EPC. Institutional facilities (18 percent) were least likely to have been convinced by the third-party firm. Also, 23 percent of the institutional facilities said that the project was not undertaken due to insufficient savings potential. These facilities were more likely to have reported already implementing most of the cost-effective energy-efficiency improvements.

6.4 ENERGY PROGRAM AWARENESS, EFFICIENCY-RELATED IMPROVEMENTS

The following subsection discusses results regarding actions taken by firms to improve energy efficiency, as well as awareness of utility energy-efficiency programs.

6.4.1 Energy Efficiency Actions

Approximately 60 percent of the firms reported that they had taken actions to improve energy efficiency in the past year. As Table 6-12 shows, the percentages were fairly equal across each size category. However, institutional facilities were the most likely to have taken recent energy efficiency actions, at 72 percent, and office facilities were the least likely, at 50 percent.

Table 6-12
Any Actions To Improve Energy Efficiency In Past Year (QIM3) (weighted)

Response	500 - 1000 kW	1000 - 2000 kW	>2000 kW	All CA	Out of State
Yes	58%	59%	61%	60%	58%
No	42%	41%	38%	40%	41%
Don't Know	0%	<1%	1%	1%	1%
# Respondents	*121*	*120*	*108*	*349*	*350*

As seen in Table 6-13, the most common actions taken were installing efficient lighting equipment (64 percent in California, 71 percent non-California), installing efficient motors or variable-speed drives (VSDs) (60 percent in California, 54 percent non-California) and installing efficient HVAC/refrigeration equipment (48 percent in California, 52 percent non-California).

In California, firms in all size categories installed a significant percentage of each type of measure. As one would expect, larger firms were more likely to install efficient motors and VSDs and smaller firms were more likely to install efficient lighting equipment. When examined by business type, industrial metals/mining facilities were most likely to have installed multiple measures, followed by office facilities. The highest likelihood of an action was seen with petroleum/plastics firms, 96 percent of which had installed more efficient motors or VSDs within the time period.

Table 6-13
Type Of Energy Saving Action(s) Taken (QIM4) (weighted)

Response	500 - 1000 kW	1000 - 2000 kW	>2000 kW	All CA	Out of State
Efficient Lighting Equipment	73%	63%	61%	64%	71%
Efficient HVAC/Refrigeration Equipment	49%	47%	48%	48%	52%
Efficient Motors or VSDs	40%	53%	72%	60%	54%
Reengineer Manufacturing Or Processing	27%	33%	36%	33%	35%
Controls or EMS	30%	31%	33%	32%	46%
Other	15%	20%	14%	16%	18%
Don't Know	0%	1%	0%	<1%	1%
# Respondents	*66*	*74*	*68*	*208*	*187*

About 26 percent of the California firms and 30 percent of the non-California firms reported that they had identified, but not undertaken, energy-efficiency actions within the same time period.

6.4.2 Program Awareness

Respondents were asked about their familiarity with utility energy-efficiency programs. While only 48 percent of the smallest firms were aware of any programs, 57 percent of the total market were aware of one or more programs. (See Table 6-14) Firms in the SDG&E territory were somewhat more likely (63 percent versus 56 percent) than firms in the other utility territories to say that they were aware of one or more utility programs. Overall, industrial electronics/machinery, institutional and office facilities were most likely to be familiar with utility programs.

Table 6-14
Aware Of Any Utility Energy Efficiency Programs In 1999 (QIN_PR1) (weighted)

Response	500 - 1000 kW	1000 - 2000 kW	>2000 kW	All CA
Yes	48%	62%	59%	57%
No	51%	36%	39%	41%
Refused	0%	<1%	0%	<1%
Don't Know	2%	2%	2%	2%
# Respondents	*121*	*120*	*108*	*349*

When asked whether they were aware of any energy-efficiency programs or resources provided by their utility, 53 percent of California firms mentioned rebates or incentives. Only 20 percent mentioned energy audits. As shown in Table 6-15, unprompted awareness of individual programs varied by size category, with the smallest firms more likely mention SPC programs and audits and the largest firms most likely to mention Express Efficiency.

Table 6-15
Awareness Of 1999 Programs Promoting Energy Efficiency by Size (QPR1) (weighted)

Response	500 - 1000 kW	1000 - 2000 kW	>2000 kW	All CA
Standard Performance Contracting	17%	10%	9%	11%
Business Energy Audits	24%	15%	20%	20%
Distributor Incentives	13%	7%	5%	7%
Express Efficiency	13%	7%	22%	17%
Rebates/Incentives	55%	55%	51%	53%
Other Programs	33%	38%	43%	40%
Refused	0%	0%	2%	1%
Don't Know	4%	6%	2%	3%
# Respondents	*65*	*75*	*68*	*208*

It is also interesting to look at the difference in program awareness by business type, as indicated in Table 6-16. Overall institutional facilities reported the highest awareness of all programs, with the exception of energy audits. Using the SPC programs as an example, only 1 percent of industrial petroleum/plastics facilities were aware of SPC, yet 21 percent of institutional facilities were aware. There was also a clear difference in awareness among utility territories, with facilities in the SDG&E territory most likely to be aware of all of the programs.

Table 6-16
Awareness Of 1999 Programs Promoting Energy Efficiency
by Business Type (QPR1) (weighted)

Response	Office	Inst	Othr Comml	Indust: E/M	Indust: P/P	Indust: M/M	Indust: Othr	All CA
Standard Performance Contracting	8%	21%	12%	13%	1%	10%	9%	11%
Business Energy Audits	12%	28%	12%	19%	46%	3%	18%	20%
Distributor Incentives	6%	18%	4%	8%	2%	11%	5%	7%
Express Efficiency	5%	33%	19%	21%	22%	10%	8%	17%
Rebates/Incentives	61%	62%	44%	55%	51%	50%	54%	53%
Other Programs	44%	25%	35%	48%	50%	31%	46%	40%
Refused	0%	0%	5%	0%	0%	0%	0%	1%
Don't Know	2%	4%	11%	2%	0%	0%	0%	3%
# Respondents	*36*	*32*	*26*	*34*	*25*	*22*	*33*	*208*

6.5 ENERGY-RELATED DECISION MAKING

The survey included questions regarding energy related decision-making, the approval process, staff responsibility for controlling energy costs, and specific policies regarding energy efficiency.

6.5.1 Getting Approval for Energy Efficiency Projects

Table 6-17 indicates that non-California respondents were slightly more likely to say that the process to approve energy-efficiency investments was complex and difficult, but the differences were very small. Within California, the smallest firms were most likely to report that the approval process was relatively simple and straightforward. Institutions were most likely to report that the process was complex but manageable, while offices were most likely to report a simple and straightforward process. While no systematic difference by utility territory was expected, firms in PG&E territory were significantly more likely (40 percent PG&E , 28 percent SCE, 23 percent SDG&E) to report a simple and straightforward process, while those in SCE territory were somewhat more likely to report that the process was complex and difficult (24 percent SCE, 20 percent SDG&E, 13 percent PG&E).

Table 6-17
Complexity Of Process To Approve Energy Efficiency Investments (QDM2A) (weighted)

Response	500 - 1000 kW	1000 - 2000 kW	>2000 kW	All CA	Out of State
Relatively Simple And Straightforward	42%	29%	30%	33%	35%
Somewhat Complex, But Manageable	46%	47%	50%	48%	42%
Complex and Difficult To Get Through	12%	23%	20%	18%	20%
Don't Know	0%	1%	1%	1%	3%
# Respondents	*121*	*120*	*108*	*349*	*350*

As shown in Table 6-18, the overwhelming majority of firms reported that the process for approving energy-efficient equipment is the same as for other capital investments, with the largest

firms being the most likely at 94 percent. The results are similar across business types; however, industrial firms are most likely to report the processes are the same, while 14 percent of the institutions reported that they are different.

Table 6-18
Is Energy Efficient Equipment Approval Process the Same As Other Capital Investments? (QDM2C) (weighted)

Response	500 - 1000 kW	1000 - 2000 kW	>2000 kW	All CA	Out of State
Yes	86%	81%	94%	89%	78%
No	10%	10%	4%	7%	15%
Don't Know	4%	9%	2%	4%	7%
# Respondents	*121*	*120*	*108*	*349*	*350*

6.5.2 Assigned Responsibility for Controlling Energy Costs

Most firms had someone assigned to manage energy costs. Table 6-19 illustrates that California firms were more likely than non-California firms to have assigned a person or group the duty. As might be expected, the smallest firms were the least likely to have assigned a particular person or group. Thirty-one percent of the smallest California firms interviewed had not assigned the duties, compared to 23 percent for all California firms and 29 percent of non-California firms. Office firms were the least likely, at 83 percent, to have someone assigned, and those that had assigned someone were significantly more likely than other business types to have chosen an outside contractor.

Table 6-19
Person In Charge Of Energy Usage/Costs (QDM6) (weighted)

Response	500 - 1000 kW	1000 - 2000 kW	>2000 kW	All CA	Out of State
An In-House Staff Person	49%	47%	52%	50%	37%
A Group Of Staff	15%	25%	25%	22%	25%
An Outside Contractor	3%	2%	2%	2%	6%
Not Assigned	31%	21%	19%	23%	29%
Refused	0%	1%	0%	<1%	0%
Don't Know	2%	4%	2%	2%	3%
# Respondents	*121*	*120*	*108*	*349*	*350*

6.5.3 Organization's Energy Efficiency Policies

Overall, approximately one third of the firms had formalized specification policies for the selection of energy-efficient equipment. As indicated in Table 6-20, non-California firms were slightly more likely to have specification policies. In addition, the larger the firm, the more likely they were to have developed formal policies. Institutions were the most likely (47 percent) to have policies, while industrial, office, and commercial firms ranged from 25 to 38 percent.

Table 6-20
Any Policy For Selection Of Energy Efficiency Equipment? (QDM9) (weighted)

Response	500 - 1000 kW	1000 - 2000 kW	>2000 kW	All CA	Out of State
Yes	20%	31%	34%	30%	34%
No	76%	61%	65%	67%	64%
Don't Know	4%	7%	1%	3%	2%
# Respondents	*121*	*120*	*108*	*349*	*350*

A new question was added to assess whether firms had any incentive or award policies encouraging employees to reduce costs. Non-California firms were twice as likely, at 18 percent, to have incentives for employees to lower energy costs. Within California, firms in the mid-range of demand were more likely (14 percent) than the smallest (8 percent) and largest (7 percent) firms. When examined by business type, industrial petroleum/plastics (14 percent) and electronics/machinery (13 percent) were the most likely to offer incentives, as compared to only 1 percent of institutional firms. Firms in the SDG&E territory were also significantly more likely, at 19 percent, than firms in other territories (7 percent PG&E, 8 percent SCE).

There were 29 California respondents who provided details on the type of incentives offered for saving energy costs. Twelve said that there was a reward or incentive if problems were reported or suggestions were made to save energy. Another three said that they received a reward if their suggestions were implemented. Four said that they received a share of the savings or benefited through profit sharing. Other responses included receiving the utility rebate, keeping their job and that the firm decides depending on the situation.

6.5.4 Investment Criteria for Energy Efficiency Projects

Three-fourths of the firms reported using payback periods for energy efficiency investments. The mean payback period reported for California firms weighted by energy usage was 2.5 years for the 314 respondents who were able to provide estimates. The non-California weighted mean was 3.1 years. As Table 6-21 indicates, the larger the firm, the shorter the reported payback period was likely to be. Approximately 5 percent of the firms said that they allowed payback periods longer than five years, which were almost exclusively institutions in California. Fifty percent or more of the firms in each size category reported payback periods of three years or less.

Table 6-21
Payback Period For Energy Efficiency Investments (QDM12A) (weighted)

Response	500 - 1000 kW	1000 - 2000 kW	>2000 kW	All CA	Out of State
1 Year Or Less	12%	13%	16%	14%	13%
2 Years	22%	24%	36%	30%	23%
3 Years	16%	16%	11%	13%	19%
4 Years	2%	3%	6%	4%	2%
5 Years	17%	10%	11%	12%	8%
6 -10 Years	2%	6%	4%	4%	4%
Over 10 Years	1%	0%	0%	<1%	1%
Don't know/Other	28%	27%	17%	22%	29%
# Respondents	*121*	*120*	*108*	*349*	*350*

6.5.5 Willingness to Pay for Measurement and Verification

In order to gain information on attitudes toward M&V, the survey asked if respondent firms valued M&V enough to be willing to pay for it in the absence of a program requirement to do so. Table 6-22 illustrates that almost 70 percent of California firms (68 percent) and 57 percent of non-California firms said that they would or might be willing to pay for M&V depending on the circumstances. In California, offices (77 percent) and institutions (76 percent) were the most likely to report a willingness to pay, while a lower percentage of industrial firms reported a willingness to pay.

Table 6-22
Value M&V Enough To Be Willing To Pay (QBR2) (weighted)

Response	500 - 1000 kW	1000 - 2000 kW	>2000 kW	All CA	Out of State
Yes	59%	50%	54%	54%	43%
No	26%	33%	26%	27%	36%
Depends On Specific Case	11%	13%	15%	14%	14%
Refused	0%	0%	3%	1%	<1%
Don't Know	4%	5%	3%	3%	6%
# Respondents	*121*	*120*	*108*	*349*	*350*

When asked what percent of the savings they would be willing to pay for M&V, half of all California firms and 40 percent of all non-California firms reported that they would be willing to pay 10 percent of the savings or less. (See Table 6-23) The weighted mean for the 168 California firms that where able to answer was 12.6 percent; the weighted mean for non-California firms was 14.2 percent. Roughly 29 percent of California firms and 42 percent of non-California firms were unable or unwilling to give a percentage estimate of willingness to pay. The pattern of estimates across size and business type was similar.

Table 6-23
Percent of Savings Willing To Pay For M&V (QBR2A) (weighted)

Response	500 - 1000 kW	1000 - 2000 kW	>2000 kW	All CA	Out of State
Zero	0%	0%	6%	3%	1%
1-2%	16%	13%	11%	12%	10%
3-4%	2%	5%	3%	4%	1%
5-6%	20%	19%	17%	18%	17%
7-8%	3%	0%	0%	1%	<1%
9-10%	8%	12%	14%	12%	10%
11-20%	6%	11%	11%	10%	5%
21-50%	13%	7%	9%	10%	10%
Over 50%	3%	3%	0%	1%	1%
Refused	0%	0%	0%	0%	1%
Don't Know	28%	30%	30%	29%	42%
# Respondents	*80*	*79*	*80*	*239*	*190*

6.5.6 Concerns Regarding Energy-Efficiency Improvements

The survey included a series of questions to gauge respondent uncertainty regarding purchasing energy efficient equipment and related services. Respondents were asked to rank uncertainty as a barrier to potential energy-efficiency investments on a 0-to-10 point scale. As shown in Table 6-24 and Table 6-25, respondents reported that uncertainty regarding the performance of energy efficient equipment; estimates of savings and trustworthiness of third-party firms were all significant barriers to potential energy efficiency measures. Uncertainty of firm trustworthiness was consistently rated as the most significant barrier of the three, in each size and business type category.

Table 6-24
Mean Rating of Uncertainty Regarding Energy Efficient Equipment And Services by Size (QBR1A) (weighted)

Response	500 - 1000 kW	1000 - 2000 kW	>2000 kW	All CA	Out of State
Uncertainty of Performance of EE Equipment	7.2	7.4	6.8	7.0	7.4
Uncertainty of Actual vs. Estimated Savings	7.4	7.7	7.1	7.3	7.4
Uncertainty of Firm Trustworthiness	8.0	8.1	7.6	7.8	7.7
# Respondents	*120*	*118*	*104*	*342*	*335*

Table 6-25
Mean Rating of Uncertainty Regarding Energy Efficient Equipment And Services by Business Type (QBR1A) (weighted)

Response	Office	Inst	Othr Comml	Indust: E/M	Indust: P/P	Indust: M/M	Indust: Othr	All CA	Out of State
Uncertainty Of Performance Of EE Equipment	7.8	7.3	6.6	7.4	6.6	7.5	6.6	7.0	7.4
Uncertainty Of Actual vs. Estimated Savings	7.8	7.5	6.8	7.1	7.4	7.7	7.3	7.3	7.4
Uncertainty Of Firm Trustworthiness	7.6	8.3	7.0	7.9	8.8	8.3	7.6	7.8	7.7
# Respondents	*54*	*53*	*55*	*51*	*38*	*34*	*57*	*342*	*335*

6.6 AWARENESS AND ASSESSMENT OF SPECIFIC TYPES OF ENERGY SERVICE PROVIDERS AND SERVICE OFFERS

The following subsection presents results of the respondents' awareness and opinions of third-party providers and service offers.

6.6.1 Energy Efficiency Services Offers

Over half of the firms interviewed had been solicited by a third party to improve energy efficiency in the prior year. Rates were similar both within and outside California. (See Table 6-26) When examined by business type, industrial metals/mining were the least likely, at 47 percent, and offices were the most likely, at 66 percent.

Table 6-26
Firm Solicited To Improve Energy Efficiency In Past Year (QEO1) (weighted)

Response	500 - 1000 kW	1000 - 2000 kW	>2000 kW	All CA	Out of State
Yes	54%	51%	57%	55%	53%
No	45%	39%	39%	40%	42%
Don't Know	2%	10%	4%	5%	5%
# Respondents	*121*	*120*	*108*	*349*	*350*

6.6.2 Credibility of Companies Providing Energy Efficiency Services

Distribution companies continue to be considered the most credible source of energy efficiency related information. When asked to rate the credibility of different sources as firm types of energy efficiency-related information on a 0-to-10 point scale, the local electric distribution utility was the clear leader for both California (8.4) and non-California firms (8.0). As Table 6-27 illustrates, the second most credible firm types were engineering/architectural design firms with a mean rating of

6.9 in California and 7.0 for non-California firms. ESPs and ESCOs received the lowest mean ratings overall.

Table 6-27
Mean Rating Of Credibility Of Firms As Source Of Energy Efficiency Related Information by Size (QSP4A) (weighted)

Response	500 - 1000 kW	1000 - 2000 kW	>2000 kW	All CA	Out of State
Engineering /Architectural Design Firms	6.6	6.6	7.1	6.9	7.0
Energy Equipment Contractors/Installers	6.5	7.2	6.7	6.7	6.8
Energy Service Companies (ESCOs)	5.9	6.1	6.7	6.4	6.3
Local Electric Distribution Utility	8.3	8.7	8.3	8.4	8.0
Energy Service Providers (ESPs)	6.0	6.1	6.6	6.3	6.8
# Respondents	*103*	*89*	*88*	*280*	*217*

Table 6-28 reports the credibility rankings by business type.

Table 6-28
Mean Rating Of Credibility Of Firms As Source Of Energy Efficiency Related Information by Business Type (QSP4A) (weighted)

Response	Office	Inst	Othr Comml	Indust: E/M	Indust: P/P	Indust: M/M	Indust: Othr	All CA	Out of State
Engineering /Architectural Design Firms	7.1	7.4	6.7	7.1	7.5	6.5	6.3	6.9	7.0
Energy Equipment Contractors/Installers	6.9	6.7	7.1	6.7	6.3	6.6	6.4	6.7	6.8
Energy Service Companies (ESCOs)	6.1	6.6	6.8	6.0	6.8	6.2	6.0	6.4	6.3
Local Electric Distribution Utility	8.3	8.3	8.3	8.6	7.8	8.6	8.8	8.4	8.0
Energy Service Providers (ESPs)	6.3	7.1	5.8	6.2	7.1	6.1	6.3	6.3	6.8
# Respondents	*45*	*45*	*42*	*42*	*31*	*31*	*44*	*280*	*217*

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A LNSPC PROGRAM DESCRIPTION

A.1 ABOUT THE PROGRAM

In 1998, the Program's first year, it was called the "Nonresidential Standard Performance Contract Program"(NSPC). In 1999, the Program was separated into two separate programs based on customer size. The 1999 Large Nonresidential Standard Performance Contract Program (LNSPC) was designed to serve end users with peak demand of 500 kW or more, while the 1999 Small Business Standard Performance Contract Program was designed to serve customers of less than 500 kW peak demand. In this report, we focus on the 1999 LNSPC and its predecessor the 1998 NSPC.[1]

The Large Nonresidential Standard Performance Contract Program
The 1999 LNSPC is an energy efficiency program offered by the Program Administrators (SCE/SDG&E/PG&E) under the auspices of the California Public Utilities Commission (CPUC). The LNSPC Program is a key element of the CPUC goal of market transformation and the creation of a self-sustaining energy efficiency services industry. With this Program, the Utilities offer a fixed price incentive to application sponsors, including self-sponsoring customers and energy efficiency service providers (EESPs) for measured kilowatt-hour (kWh) energy savings achieved by the installation of an energy efficiency project. The fixed price per kWh, performance measurement protocols, payment terms, and all other operating rules of the Program are specified in a standard contract.

Utility/Program Administrator's role
The role of the Program Administrator is to manage the Program in a fair and nondiscriminatory manner, promote the Program, educate customers and EESPs on the Program, and enter into contracts with Project Sponsor to pay for measured energy savings.

How does this program differ from traditional utility rebate programs?
The 1999 LNSPC is a "pay-for-performance" program. With traditional utility rebate programs, the utility pays an incentive directly to its customer based on an estimate of annual savings from a project. However, with the pay-for-performance LNSPC Program, the utility pays a variable incentive amount to a third-party EESP, or to a customer acting as their own EESP, based on measured energy savings. The LNSPC is also different from traditional utility rebate programs in that the total incentive is paid over a two-year performance period. During the performance period, the Project Sponsor must measure and verify the energy savings actually achieved using a mutually agreed upon measurement protocol.

[1] For an evaluation of the Small Business SPC Program refer to XENERGY, Inc., *1999 State-Level Small/Medium Nonresidential MA&E Study*, Draft Final Report, May 2000.

What is an Energy Efficiency Service Provider (EESP)?
An EESP can be any company, organization or individual that contracts with the administrator to receive payment for measured energy savings resulting from an energy efficiency project. In the 1999 LNSPC Program, a SCE/SDG&E/PG&E customer can act as an EESP by contracting directly with their utility and installing and measuring savings from an energy efficiency project at their own facility. A third-party EESP is any firm that implements all or part of an energy efficiency project at a customer's facility. An EESP may perform some or all of the following services related to an energy efficiency project: detailed or "investment grade" audits; engineering studies to assess project feasibility; engineering design; project financing; construction management; project installation/construction; and engineering measurement and verification of energy performance (e.g. project savings). EESPs that offer all of these services as a "turn key" contractor are also commonly referred to as Energy Service Companies or ESCOs.

A.2 LNSPC PROJECT ELIGIBILITY REQUIREMENTS

Measurement and Verification of Energy Savings
Because of the pay-for-performance nature of the 1999 LNSPC Program, a key requirement for project eligibility is that the savings resulting from the project must be measured in accordance with a project specific measurement and verification (M&V) plan. The M&V plan must be prepared by the Project Sponsor in accordance with the Program Procedures Manual, and be mutually agreed upon by the Program Administrator and the Project Sponsor prior to beginning any work on project installation.

Minimum Project Savings
In order to qualify for the 1999 LNSPC Program a project must produce savings of at least 200,000 kWh or 20,000 therms per year. Two or more projects may be combined, or "aggregated", to meet this requirement. Aggregated projects must employ the same energy efficiency measures and be installed at similar sites in order to make measurement and verification of multiple projects feasible.

Eligible Energy Efficiency Technologies
The 1999 LNSPC Program is open to almost any equipment replacement or retrofit project for which the savings can be measured and verified. The project must have a useful life of greater than three years. Eligible energy efficiency technologies, or "measures" include, but are not limited to, replacement of standard fluorescent lighting with high efficiency fluorescent lighting, installation of variable speed drives on electric motors, installation of lighting controls to reduce lighting operating hours and replacement of standard efficiency air conditioning equipment with high efficiency equipment. Projects that are not eligible include any power generation project, co-generation, fuel substitution or fuel switching projects, new construction projects and any repair or maintenance project. A list of some of the eligible technologies is presented on the next page.

Eligible Technologies

Lighting Technologies

- Lighting efficiency projects
- Lighting controls projects
- Daylighting

HVAC&R Technologies

- Chiller replacement projects
- Air cooling and refrigeration compressor replacement projects
- Packaged cooling unit replacement projects
- Variable air volume conversion projects
- Air side economizer projects
- Water side economizer projects
- Air handler motor efficiency upgrades
- Air handler variable speed drive installations
- Variable speed drive installations on chilled water and condenser water pumps
- Energy management systems that control HVAC&R equipment
- Cooling tower motor efficiency upgrades
- Cooling tower motor variable speed drive installations
- Control installations for HVAC&R equipment
- Evaporative cooling
- Evaporative pre-cooling
- Building mass storage
- Special window glazing and glazing treatments in air conditioned buildings
- Exterior and interior window shading in air conditioned buildings
- Natural cooling (e.g., operable windows) in air conditioned buildings
- Indirect evaporative cooling (single stage and dual stage)
- Hot-spot ventilation in air conditioned buildings (such as attic vents and fans)
- Heat transfer (including heat pumps) to heat sinks, such as ground source cooling in air conditioned buildings
- Projects that upgrade the efficiency or controls of heating equipment
- Exhaust hood and fan projects
- Chiller and boiler heat reclaim
- Refrigerated case door projects

Non HVAC&R/Non Lighting Technologies

All projects that do not fall in the other two categories such as:

- Industrial process applications
- Variable speed drive installations on industrial fans and pumps

- Trimming impellers on industrial fans and pumps
- Projects improving building hot water efficiency
- All motor projects that do not fall under HVAC&R
- Electrical savings resulting from the installation of water flow controls

Technologies not eligible under the 1999 LNSPC Program

- All technologies with a measure life of less than 3 years
- All technologies that are below federal and state minimum standards
- All measures that decrease building plug loads, such as "Green Plugs" or computer inactivity time-out controls
- All measures that are removable without the use of tools, such as screw in compact fluorescent lamps
- Projects that save energy because of operational changes
- Load shifting technologies
- All measures that do not reduce electrical consumption
- Fuel switching projects
- Self generation or cogeneration projects
- New construction projects
- Repair or maintenance projects

A.3 INCENTIVE PAYMENTS FOR ENERGY SAVINGS

Total program funding

Program Administrators were authorized by the CPUC to contract for up to $44.1 million in total incentive payments for the 1999 program year.

Payment for kWh savings

The price per kWh savings for the three main measure categories is shown in the table below:

Measure Type	Price/kWh
Lighting	$0.050
HVAC&R*	$0.165
Other	$0.080

*Heating, Ventilating, Air-Conditioning & Refrigeration

The "Lighting" category includes lighting equipment retrofits and lighting control measures. The "HVAC&R" category includes heating, ventilation, air-conditioning and refrigeration equipment retrofits in commercial and industrial applications. The "Other" category includes any measure that is not categorized as either lighting or HVAC. The amount paid for savings from HVAC measures is approximately three times the amount paid for savings from lighting measures. “Other” measures are paid at about one-and-a-half times the rate paid for lighting.

Minimum Energy Efficiency Standards
State and Federal minimum energy efficiency standards are applied to the "baseline" or existing system energy consumption to calculate energy savings that are eligible for LNSPC incentive payments. Only energy savings that exceed the applicable minimum energy efficiency standards are eligible for incentive payments under the Program. Applicable standards include, but are not limited to, State of California Title 20, and Title 24, and The Energy Policy Act of 1992.

Total Incentive Payment
The total possible incentive payment for a project is calculated as the estimated annual kWh savings multiplied by the price per kWh. The total incentive is paid to the Project Sponsor over a two-year period in three payments. One payment of 40 percent of the estimated incentive will be paid upon verification of project installation. Two payments of 30 percent are paid after completion of the first and second measurement, or performance, periods of one year each. The actual incentive that is paid on a project is pro-rated based on the measured savings during each of the two performance periods. Thus, the total incentive paid on a project is determined by the actual performance of the project. The performance is measured in accordance with a measurement and verification (M&V) plan that is mutually agreed to between the Program Administrator and the Project Sponsor.

Limitations on EESP and Customer Incentive Payments
For the 1999 LNSPC Program, Project Sponsors are limited to a maximum of 25 percent of the LNSPC incentive budget within the affiliated Utility Administrator's service territory. Customers are limited to a maximum of $400,000 per customer site. In 1999, caps were added to limit state government agencies and corporate parent companies to maximum of $1.5 million and all state and federal governments were limited to a maximum of $6 million total in LNSPC incentives statewide.

A.4 PROJECT APPLICATION AND APPROVAL PROCESS

Overview
A Project Sponsor may ensure funding for a project by submitting and receiving approval of a Basic Project Application (BPA). After approval of the BPA, the Project Sponsor must adhere to a timeline for providing and receiving approval of detailed information about the project including a measurement and verification strategy for determining energy savings. If the project timeline is not met, the Project Sponsor risks expiration of the project funding. Ultimately, the Project Sponsor must install the project and receive approval of the project installation before receiving the first incentive payment. After a project is installed, the Project Sponsor moves into the two-year performance period of the contract, during which the Project Sponsor must follow the approved measurement and verification plan to determine the actual energy savings for the project. The Project Sponsor submits and receives approval of the measurement and verification results at the end of each of the two performance periods to receive the second and third incentive payments. The first incentive payment, which is based on estimated savings, will be trued up by the second incentive payment, which is based on the measured results.

The following table is a listing of the submittals that were/are required for participation in the 1999 LNSPC Program.

Summary of Required Project Submittals

Submittals Preceding Contract	*Purpose*	*Project Sponsor Submittal Schedule*	*Administrator Review Cycle**
1. Basic Project Application (BPA)	Project Sponsor notification to Utility Administrator requesting the reservation of funding	Before December 31, 1999, and subject to program funding availability	30 Days
2. Detailed Project Application (DPA)	A detailed project proposal and basis for an agreement	For lighting projects, within 45 days of BPA approval For non-lighting projects, within 100 days of BPA approval	45 Days (for single Project Site applications)
3. Signed LNSPC Agreement	A standard agreement between the Utility Administrator and Project Sponsor based on the DPA.	Issued with DPA approval letter; must be returned within 30 days of DPA approval with 2.5% installation deposit	
Submittals Following Agreement Execution			
4. Project Installation Report (PIR)	A description of the installed project	Suggested within 60 days of project installation and commissioning; Before December 31, 2000	45 Days (for single Project Site applications)
5. Installation Invoice for Payment	A request for payment based on the approved PIR	Within 30 days of PIR approval	30 Days
6. 1st and 2nd Annual Savings Reports (ASR1and ASR2 Reports)	Reports that present first-year and second-year verified energy savings	1st due within 30 days after the 1st anniversary of PIR approval; 2nd due within 30 days after the 2nd[t] anniversary of PIR approval	45 Days (for single Project Site applications)
7. Invoices for 1st and 2nd Performance Payments	1st payment request based on ASR1 2nd payment request based on ASR2	Within 30 days following approval of each ASR; Before May 10, 2003.	30 Days

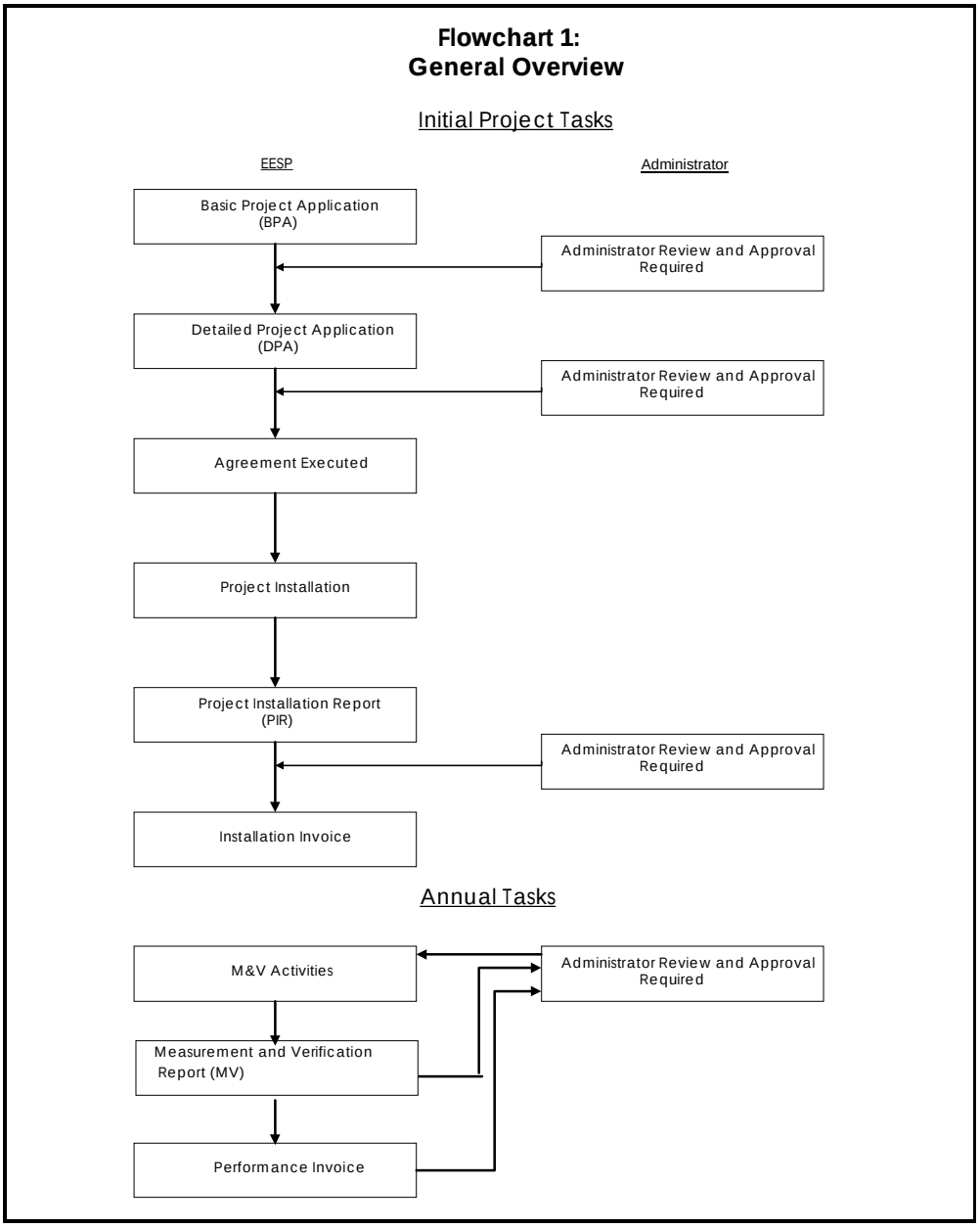
*The number of days listed are estimates. Some Projects may require more/less time.

Application Period

Applications are accepted by utilities/Program Administrators for the 1999 Large Non-Residential Standard Performance Contract Program until all funds for the Program are committed, or until December 31, 1999, whichever occurs first.

Project Application Sequence

The flow of a project through the phases of the LNSPC Program is depicted in the following chart. This is a high level representation and does not show all of the program review and approval sequences. A description of the program application process and submittal requirements is included in the sections following the chart. The program contractual requirements for submittal, review, and approval are contained in the Program Procedures Manual. The following flowchart presents an overview of project tasks:



Basic Project Application

The Basic Project Application (BPA) is the first step in the application process. Upon approval of the BPA, LNSPC Program incentive funding in the amount of the total estimated incentive for the project is reserved for that project. The BPA ensures that the project meets the eligibility requirements for the Program, and that the owner of the facility has authorized the Project Sponsor to proceed with the detailed development of a project for participation in the LNSPC Program. Before completing and submitting a BPA, the Project Sponsor should consult with the administrator to determine if sufficient funding is currently available for the project.

The BPA includes the following:

- facility owner/(SCE/SDG&E/PG&E) customer name
- project name and address
- Administrator (SCE/SDG&E/PG&E) account number or meter number description of the project, i.e. energy efficiency measures to be installed
- estimated kWh savings
- preliminary energy savings estimate and calculations
- the total estimated LNSPC incentive payment
- a $250 application fee, which is refunded upon installation of the project
- a "Site Control" form, signed by the owner of the facility, which indicates that the owner of the facility has given the EESP exclusive right to proceed with development of a project for participation in the LNSPC Program in cases were the application has been sponsored by a third-party EESP. The purpose of the Site Control form is to prevent multiple EESPs from reserving LNSPC incentive funding for the same project.

Detailed Project Application

Upon Program Administrator's approval of a BPA, the Project Sponsor must submit a Detailed Project Application (DPA). In order to prevent expiration of the project incentive funding, a DPA must be submitted within 45 days of BPA approval for lighting projects, and within 100 days of BPA approval for all other projects.

The DPA includes all of the detailed Program Administrator needs to check and verify the estimated savings and estimated incentive payment, and enter into the LNSPC contract with the EESP (or customer). The EESP (or customer) and administrator enter into a LNSPC contract after administrator approves the DPA, and the approved DPA becomes a part of the contract.

The DPA includes the following:

- description of the project and all equipment
- a measurement and verification strategy for determining energy savings
- savings estimates and calculations
- a schedule and milestones for the project
- an installation deposit of 2.5 percent of the total estimated incentive amount
- the Customer Affidavit. EESPs are contractually required to provide the administrator with a signed affidavit from the customer which includes the following information: (1) EESP name; (2) project site and address; (3) estimated annual and life-cycle savings; (4) total project costs; (5) agreement by the customer to allow the administrator access to the project site for inspections and verification of energy savings; (6) indication of the measurement and verification protocol to be used to measure and verify savings; (7) the LNSPC incentive amount that will be paid to the EESP; (8) a statement from the customer indicating responsibility for the selection of the EESP and releasing the administrator from any damages resulting from the project, including but not limited to equipment malfunctions or energy savings shortfalls; and (9) indication of the existence and type of dispute resolution process between the EESP and customer.

Project Installation Report

Upon approval of the DPA, the Project Sponsor must install the project per the LNSPC contract terms. Once the project installation is completed, the Project Sponsor submits a Post Installation Report (PIR). The PIR must be submitted within 60 days after project installation but before December 21, 2000.

The PIR updates the DPA to reflect the project's actual as-built condition, document any measurement and verification activities performed to date, report actual project costs and revise project savings estimates. After approval of the PIR, the first incentive payment is made to the Project Sponsor based on the estimated savings approved in the PIR.

Measurement and Verification Reports

After a project is installed, the Project Sponsor must follow the approved measurement and verification strategy to determine the actual annual energy savings for the project. Prior to the end of each of the two performance years, the Project Sponsor submits an Annual Savings report that summarizes the measurement and verification results, and calculates the actual energy savings achieved.

After approval of the first year ASR, the second incentive payment is made to the Project Sponsor. The second payment is adjusted from the first incentive payment for the actually achieved energy savings. After approval of the second year ASR, the third and final incentive payment is made to the Project Sponsor.

A.5 LNSPC ACRONYM GLOSSARY

EESP - Energy Efficiency Service Provider
LNSPC – Large Nonresidential Standard Performance Contract Program
BPA - Basic Project Application
DPA - Detailed Project Application
PIR - Project Installation Report
M&V - Measurement and Verification
INV - Invoice
CPUC - California Public Utilities Commission
PGC - Public Goods Charge
HVAC&R - Heating, Ventilation, Air Conditioning, and Refrigeration
EEM - Energy Efficiency Measure
DSM - Demand Side Management
LE - Lighting Efficiency
LC - Lighting Controls
AH - Air Handler
AHU - Air Handling Unit
CH - Chiller
VSD - Variable Speed Drive
CFM - Cubic Feet per Minute
ASR – Annual Savings Report

B

REVIEW OF PROGRAM SOURCES FOR THEORY DEVELOPMENT

The following memo is a review of sources summarizing the latest information from secondary sources related to the large nonresidential market for energy-efficiency products and services and program interventions related to the LNSPC.

- MEMORANDUM -

TO: Pierre Landry, SCE

FROM: Julia Larkin and Mike Rufo

DATE: February 10, 2000

RE: LNSPC Lit Review

CC: Ralph Prahl

The purpose of this review of sources is to summarize the latest information from secondary sources related to the large nonresidential market for energy-efficiency products and services and program interventions related to the LNSPC. This memorandum serves to incrementally update Appendix D: Review of Sources for Program Theory Development of the 1998 NSPC Study and includes reviews of the following:

- ESCO Market Study conducted by Easton for Energy Center of Wisconsin and NYSERDA
- Frost & Sullivan, North American Nonresidential Energy Management Services Study
- Paper authored by Vine, et al. on Super ESCOs entitled, "The Evolution of the U.S. ESCO Industry: From ESCO to Super ESCO," presented at the 9th National Energy Services Conference in 1998.
- Paper by Steven Nadel on market transformation entitled, "Adapting the Market Transformation Approach to Expand the Reach of Private Energy Efficiency Service Providers," presented at the 9th National Energy Services Conference in 1998.
- Paper from David S. Dayton on retail energy services companies entitled, "RESCO Product Development: A Malthusian View," presented at the 9th National Energy Services Conference in 1998.
- Paper by Margaret Suozzo and Jennifer Thorne on examining success of market transformation initiatives entitled, "Market Transformation Initiatives: Making Progress," American Council for an Energy-Efficient Economy, May, 1999.
- Paper by Martin Kushler and George Edgar evaluating the impacts of the New Jersey Program entitled, "Lessons from Granddaddy: Observations from the evaluation of the New Jersey PSE&G Standard Offer Program," presented at the International Energy Program Evaluation Conference in 1999.
- Summary of Wisconsin Focus on Energy Program

Though clearly there are other sources of relevance to our objective, our intent is not to spend time with an exhaustive literature review of anything and everything that might be related to the NSPC concept but rather to focus on materials that seek, in their own admission, to address at least some aspect of LNSPC program theory.

The following are brief assessments of the information provided in these sources that is *directly related to LNSPC program theory and hypotheses.* This is not meant as a critique of the sources, since few of them set out LNSPC program theory and hypotheses as their goals. Rather, our intent is simply to glean what we can from these for our current purpose. To the extent possible, we have relied on direct quotes, to express the relevant concepts in the authors' own words, rather than distort by paraphrasing them.

B.1.1 Report by Easton Consultants and Shel Feldman Management Consultants on the ESCO market entitled, "ESCO Market Research Study," conducted for the Energy Center of Wisconsin and New York Energy Research and Development Authority (NYSERDA)

This report assesses the current market for energy services and projected trends in the U.S., details the market for energy services in Wisconsin and New York, discusses market barriers and provides recommendations on polices to accelerate and enhance the market. It seeks to "determine how ESCOs as a 'genus' of organization are surviving, what services and types of energy efficiency-promoting activities different 'species' of ESCOs are delivering in the marketplace—and how these services are likely to evolve—as DSM's sheltering influence recedes."

Below are excerpts from the paper providing insight directly related to the LNSPC program theory and hypotheses:

Framework

"DSM provided a hothouse environment for the formation and growth of ESCOs, one that facilitated market entry, supported early capacity development, and provided guaranteed markets and capital. But these supports may have left some ESCOs unprepared to survive in competitive market conditions."

"Many of today's ESCOs argue, for example that the lure of subsidies created expectations that energy efficiency services would always be given away and failed to create educated buyers who could appropriately value ESCO services, and competently select, contract with and monitor an ESCO partner. Further, utilities' narrow focus on resource acquisition at "least cost" probably led to some degree of 'cream-skimming.'"

Defining ESCO

The ESCO genus is limited to "companies that absorb specific types of risk associated with energy efficiency projects. These risks—tied to project engineering and design, project performance, energy price uncertainty, and (in some cases) customer solvency—are ones customers and their financing sources would face were they to undertake energy efficiency projects themselves. Some correspond to the 'market barriers' observers of energy efficiency markets have long viewed as inhibiting customer-initiated energy efficiency projects."

The ESCO category definition "is broad enough to accommodate companies traditionally labeled as ESCOs, newer entities created as unregulated subsidiaries of utilities, service companies of large property owners (e.g. Rouse), and relevant activities of both large market actors (e.g. Honeywell) and small firms (e.g. risk-absorbing local architectural engineering firms)." ...It omits "companies such as pure power marketers that offer no energy-efficiency services as part of their options package...It also recognizes the role played by symbiotic market actors such as designers, distributors, and contractors."

'The research shows that ESCOs' risk-absorbing role manifests itself, on the surface, in the form of high mark-ups on goods and services provided by others...a largely virtual industry, bundling and selling the knowledge, capital, and skills of a wide range of market actors. But a dissection of the risks involved shows that they impose very real transaction costs that ESCOs have learned both to minimize and to cover in their pricing."[5]

ESCO Characteristics

"ESCOs have already gone through several stages of evolution and are beginning to resemble a mature industry...Many of the ESCOs we interviewed originated, and continue to operate, as virtual companies. They maintain internally some combination of marketing, sales, engineering, and project management skills that enable them to identify, sell, implement, and finance viable energy efficiency projects. But most use local contractors to do the construction work and third party sources of capital to finance it...ESCOs' defining activities are *valuing, assuming and managing the various kinds of risk* inherent in delivering energy efficiency services. Being virtual has meant their principal assets are the experience and intellectual capital of its employees and their track record in delivering the savings they have promised."

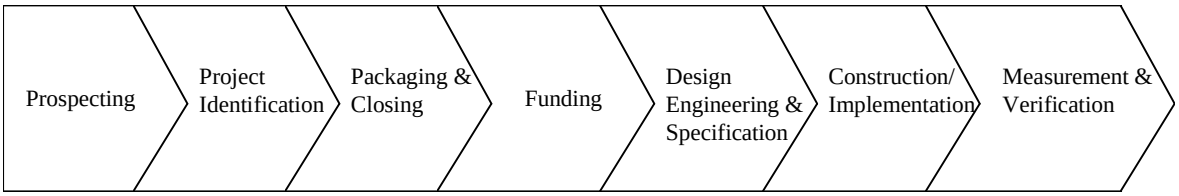
"Two types of ESCOs evolved during the DSM era."

- "*Traditionals:* have evolved largely under the aegis of DSM and public sector performance contracting programs. Their sales forces are geared heavily toward anticipating and responding to RFPs in competitive bidding situations—quickly and cost-effectively. They established sales offices in states where DSM relied heavily on demand-side bidding and have well-developed processes for costing out projects and assessing likely returns from savings."

- "*Hardwares* : entered the performance contracting business as an adjunct to selling end-use equipment, systems, or controls. Companies such as Honeywell, Johnson Controls, and Landis & Staefa fit this mold, joined more recently by Trane, Carrier, and Viron (York). They found an opportunity both to broaden their business and assure that their equipment was specified into performance contracting proposals of all types."

"Figure 1 depicts the value chain for a typical energy efficiency improvement project...the various elements or functions in the chain are the same, regardless of whether the project is an ESCO initiated energy services performance contract or it is identified, implemented, and financed internally by the energy user."

Figure 1: Energy Efficiency Project Value Chain



"Most energy efficiency projects require ESCOs or customers' internal personnel to perform the following activities:

- *Prospecting.* Searching for, identifying, and making contact with prospective energy services customers.
- *Project identification.* Evaluating the prospective customers' facilities and processes — usually through a combination of energy audits and analysis of energy consumption history — to identify energy efficiency investments that will yield attractive returns.
- *Packaging and Closing.* Putting together and negotiating a "deal" that attracts capital to the project, apportions risks between ESCO, customer and financing sources, and allocates the stream of savings between customer and ESCO so as to make completion of the project worthwhile for both parties.
- *Funding.* Identifying and securing commitments from sources of capital. Sources can be external 3rd parties, the customers' own finance/treasury departments, or the ESCO's financing affiliate.
- *Design, engineering, and specification.* Creating the plans and finalizing costs, equipment specifications, etc. for the energy efficiency measures that compose the project.
- *Construction/implementation.* Obtaining and managing contractors to install/implement the energy efficiency measures, supervising, inspecting, and commissioning their work. In most cases ESCOs act as general contractors, managing some combination of their own internal resources and third party subcontractors.
- *Monitoring and Verification (M&V)* Tracking energy consumption and costs to assure that savings targets have been met and that the energy efficiency measures are performing as planned. (How extensive this function is depends considerably on the complexity of the transaction and the structure of guarantees...)."

"... ESCOs usually leave funding activities to other specialized providers, while all perform some degree—but not all—of design engineering and project management services. The amount of contracting activity conducted by ESCOs varies. All perform the selling, financial packaging and project identification themselves. In some cases ESCOs are responsible for prospecting, while in markets where competitive bidding is predominant (e.g. state and federal markets) the end-user is generally responsible for seeking out the ESCOs."

Market Size

"Unfortunately there are no reliable estimates of the size of the competitive energy efficiency markets nationally, nor of the subset composed of services delivered via the types of ESCOs described ...The market has always presented definitional problems:

- Should a measure of the market include equipment, engineering, or contracting services used in the construction of high efficiency buildings, homes, or factories?
- Should it include investments in energy efficiency measures identified, installed, and financed by owners themselves?
- Should it include additions to operations and maintenance routines that are instituted as a result of energy audits?
- Should it include investments in energy-using equipment or controls that yield 'operational' as opposed to energy savings?"

ESCO Specializations

"Today, ESCOs are more actively marketing energy efficiency services in some locations than in others; likewise in some sectors of the economy more than others...research indicates ESCOs use surprisingly little formal analysis in deciding where to set up offices. Nevertheless, analysis of where ESCOs seem to be doing business, along with their self-reports of what makes these markets attractive, suggests that a number of factors come into play, including: market size and density; market composition; the presence and size of DSM programs historically; the pace and nature of retail energy market deregulation; relative energy costs; and the degree and intensity of competition from other ESCOs."

"Many ESCOs have chosen to specialize in particular customer segments...As an industry, ESCOs have experienced their greatest success to date in the "MUSH" markets—municipalities and states, universities, schools and hospitals. Other sectors, particularly some large industrials, small commercial customers, and most of the residential sector, have seen little ESCO activity. The research suggests that risks and transaction costs play an important role in this uneven pattern of market development."

"While the industrial sector contains the largest sized customers, on average—and many that would meet ESCOs' size criteria—most ESCOs report they have been relatively inactive in this sector. Although ESCOs believe the potential for energy savings is high and the number of critical decision-makers is relatively small, several factors limit the attractiveness of this market. Most important, the greatest opportunities for savings inhere in refining the processes peculiar to a given facility and manufacturing process, such as materials handling, process heating, or extrusion. In contrast, commercial facilities tend to have a large number of end-use applications in common—lighting and HVAC in particular—regardless of the type of occupant."

"Until recently, most ESCOs appear to have been reluctant to invest in specialized knowledge that would enable to them to launch successful projects in a particular industrial sector. In addition to the relative paucity of customers over which to leverage their expertise, there are the

difficulties (and possible liabilities) associated with carrying the projects out; for example, the ESCO must avoid interruption of production processes as much as possible."

"Another reason ESCOs report having not pursued industrial accounts until recently is their experiences of being rebuffed. The largest industrial energy users believe (some with good reason) that they have internal energy management and engineering expertise sufficient to identify and implement attractive energy efficiency projects—and the capital to finance them."

"In some segments ESCOs' ability to offer what is effectively "off the books" financing is an important tool...However, industrial companies appear to ESCOs to often have particularly extensive and complex capital budgeting criteria that make even this sort of approach to circumventing internal investment difficult."

"Buildings greater than 500,000 square feet in size make up only 0.2% of all commercial sector buildings, but they account for 10.7% of the square feet and 12.5% of electricity consumption."

"States that are currently deregulating their electricity markets are drawing the most ESCO interest and investment as the integrating energy services providers position themselves to compete across the product spectrum in these markets."

Other factors

"Some of the ESCOs are finding that the largest energy users—particularly commercial users with nationwide operations or facilities in several states—are seeking to consolidate their energy purchases among one or a few suppliers. This trend is driving their approach to procurement of energy efficiency services as well, to the extent these are being outsourced."

"ESCOs which formerly developed projects favoring lighting technology have shifted to a more balanced mix of lighting, mechanical systems, and controls (by necessity in regions in which lighting work has been "skimmed" as a result of heavy DSM activity, which was typically very heavily lighting-oriented)...This has raised the technology bar for ESCOs and has forced them to look into new areas for energy savings such as operations and maintenance."

<u>ESCO's Evolution</u>

"Administration of System Benefits Charges designed to replace utility DSM programs will rely heavily on ESCOs—through standard performance contracting mechanisms—to market, package, and implement efficiency projects. The Federal Government is stimulating even more dramatic growths in the national energy services market by getting performance contracts that could total $9 billion over the next few years and set a pattern for state and local government procurement. Finally, utility industry restructuring may result in the convergence of energy efficiency services with energy retailing (including the retailing arms of some utility holding companies) and other energy end-use services."

"The combination of utility deregulation and the federal energy performance contracting program is having profound and potentially lasting effects on the ESCO industry. The first impact appears to be the emergence of integrated (as opposed to virtual), well capitalized, full-

service players. The second is a growing concentration of market share for performance contracting services among a smaller number of participants—albeit with much larger sales than the average ESCO has today. Specialization and a focus on customer niches in the final trend..."

ESCOs and Market Barriers

"Research suggests that 'traditional' performance contracts have succeeded in reducing performance uncertainties, information and search costs, hidden costs, and access to financing. "At the same time, the industry has had limited success in reducing other barriers to sustainable energy efficiency markets—notably, high hassle/transaction costs, customers' organizational practices and customs, symmetry of information, and service availability. However, we speculate that the more sustained relationships now being pioneered—and the more integrated service packages that combine energy efficiency with energy supply, O&M services, and equipment finance—have the potential to make more lasting impacts on market behavior and to affect a broader array of customer segments."

Recommendations on Policy

"Policy options ought to take into account a very broad definition of energy services and energy service organizations. Policies built around narrow or rigid definitions of performance contracting, for example, might hinder the development of more enduring and richer relationships between ESCOs and customers that could result in improved behavior with respect to energy efficiency."

"There will continue to be important benefits to customer education programs, efforts to certify ESCOs' capabilities, and pilot programs that promote and test new business models. All of these will have the end-result of further reducing performance uncertainty for both customers and ESCOs, though the promotion of more integrated business models may run counter to calls for more rigorous and ubiquitous monitoring and verification protocols."

"Efforts to lower hassle/transaction costs may make ESCO services attractive to smaller institutions and market segments that are currently under-served. Policy efforts could include assisting in the aggregation of small projects, encouraging two step proposal processes, and focusing subsidies in particular (under-served) customer segments."

"Policy interventions can lower information and search costs by providing ESCOs with lead generation sources and providing customers with information on ESCOs, their services, and appropriate vendor selection processes."

B.1.2 Report by Frost & Sullivan on the non-residential energy service market entitled, North American Non-Residential Energy Management Service Markets, 1999.

The report provides a market overview and forecast for the energy management services market in the US and Canada. It also provides detailed analysis by market segment for the independent, utility-affiliated and equipment manufacturer-affiliated providers. They use a very broad

definition of relevant services and rely primarily on interviews with service providers to calculate the market size.

Market Trends

"Competitors in the energy management services industry are facing many challenges, including industry consolidation, end-user apathy and the entrance of new facility outsourcing competitors...The leaders in this industry continue to be the ESCO-affiliates of the building controls manufacturers...However, smaller ESCOs and contractors are posting larger growth rates than the industry leaders."

"The market for these services is extremely fragmented in North America, with no market participant controlling more than two percent of the market. Equipment vendors are the largest competitors in the industry...The smallest competitors in terms of revenues are consultants."

The estimated North American market, including U.S. and Canada for 1999 is $23 billion. "The market is expected to grow at a compound annual growth rate of 9.1 percent over the forecast period, 1998-2005...The traditional ESCO industry, often referred to as the 'performance contracting' industry, accounts for less than a quarter of the revenues presented here, or about $5.5 billion. The other portion of revenues is split among contractors, consultants, and facility management companies."

"The total revenue forecast for the U.S. energy management services market from 1995-2005...From $21,045 million in 1998, the market is expected to grow to $39,468 million in 2005 at a CAGR [compound annual growth rate] of 9.4 percent. Principal characteristics of the United States energy management services market include: Low concentration of revenues in the top competitors; Top competitors are still the building controls companies; increasingly offering open-book pricing to aid customer relations; [and] narrowing and shrinking of industry margins, from 15 to 50 percent in 1997 to 15 to 30 percent in 1999."

"Major drivers which are generating growth in the energy management services industry include:

- Federal legislation and executive orders bolster the U.S. market for energy services.
- Trend towards facility management outsourcing opens new markets for energy services.
- Performance contracting allows cash-strapped clients to manage energy."

"Major restraints, which hinder the market competitors, include:

- DSM decline decreases demand for energy management services.
- Reluctance among businesses hinders market growth.
- Lack of customer education restricts business development."

"Potential for growth in all of the end-user segments for the energy management services industry is strong. The four end user segments are: Commercial, Industrial, Institutional, Governmental ...The most quickly growing market for energy management services is the governmental market...seeing revenue growth of up to 20 percent annually...The institutional

market is also a large market for energy management, although growth has substantially slowed....The industrial market is a largely untapped, yet growing market....The lower energy use profile of commercial customers has made them a neglected part of the energy management industry."

Table 1 shows the equipment breakdown in the Energy Management Services market in the U.S. and Canada.

Table 1
Total Non-Residential Energy Management Services Market: Energy Management Breakdown (North America), 1998 (page 3-11)

Type of Equipment	Energy Management Revenues ($ Million)	Percent of Total Energy Mgmt. Company Equipment Revenues (%)
HVAC Equipment	2,418	35.8
Lighting Equipment	1,548	22.9
Building Controls	1,304	19.3
Electric Variable Speed Drives	714	10.6
Electric Motors	395	5.8
Generator Sets	280	4.1
Uniterruptible Power Supplies	65	1.0
Battery Energy Storage Systems	35	0.5
Total	6,759	100.0

Industry Definition

"Energy management services are defined as "behind the meter" services performed by and organization for the purposes of reducing energy expenditures of their client...The services and consulting work covered include: energy audits; conservation project design, project management, project engineering, project financing, load research and profiling, and operation and maintenance contracts. In addition, this report covers the sales and installation of equipment for energy management purposes, specifically: HVAC; lighting systems; building control systems; onsite power generation; energy storage systems; energy efficient motors and drives; and uninterruptible power supplies...Revenues from a myriad of energy management related industries are not included, particularly utility-sponsored demand side management, third-party project financing, commodity sales, energy management software and sales of energy efficient equipment where the primary reason for purchase was not energy management."

Categories of Providers

"The North American market for non-residential energy management services encompasses many different types of organizations...The following types of organizations are all considered participants in the market and each represents a different facet of industry, with different views, methods, goals and strategies: Energy service companies;...energy service providers that also provide the energy commodity;...equipment vendors;...contractors;... facility management companies;...[and] consultants."

"Together with the equipment vendors, ESCOs generate approximately 20 percent of the revenues, or $4.7 billion, in the North American energy management services industry."

Independent Energy Management Service Provider Market
"The independent energy management service providers are the most diverse of the provider types, encompassing ESCOs, contractors, consultants and facilities management companies. While their numbers have been declining due to consolidation, independent providers still account for a majority of revenues in the energy management industry."

Utility-Affiliated Energy Management Service Provider Market
"There has been a sharp increase in the number of utility-affiliated providers in the industry as deregulating utilities look to compete in unregulated environments. Many of these providers offer services only as a complement to their energy supply offerings, but many utility-affiliated providers are full service ESCOs."

Equipment Manufacturer-Affiliated Energy Management Service Provider Market
"These are predominantly controls companies...but HVAC vendors are now gaining strength in the market as well."

"Since the overall market is so fragmented, equipment manufacturers-affiliated providers collectively account for only about 5 percent of revenues in the energy management services industry. Individually, however, they are the leaders of the industry. In fact, the top three market share leaders in the North American market are all building controls-affiliated providers...Honeywell Home & Building Control, Johnson Controls, and Siemens Building Technologies, Landis Division."

B.1.3 Paper authored by Vine, et al. on Super ESCOs entitled, "The Evolution of the U.S. ESCO Industry: From ESCO to Super ESCO," presented at the 9th National Energy Services Conference in 1998.

This paper explores the rise in Super ESCOs, defined as those that provide traditional energy services as well as supplying gas and/or electricity or other fuels to customers. Examples include: Duke Solutions, Edison Source, and PG&E Energy Services. The paper provides Super ESCOs can be either independent or affiliated with an utility, and are distinguished by the following characteristics: (1) a corporate culture oriented toward customer service; (2) the ability to rapidly 'metabolize' information on new technologies; (3) expertise in technological integration; (4) ownership of proprietary tools for energy analysis; (5) diverse, but internally standardized, financial tools; (6) clearly defined market identity; and (7) the ability to leverage these skills across geographics and sectors. The authors relied on a review of relevant literature and interviews with Super ESCOs and utility companies in the U.S.

Market Overview

"There are about 30-40 ESCOs that are active in the US...ESCOs are typical small to medium-size companies (small companies have 1-5 employees and generate $1-5 million annual sales; medium companies have 20-50 employees and generate $10-30 million annual sales). The focus of most ESCOs marketing has been on medium to large commercial and institutional customers: Local and state government, schools, and universities account for about 55-60% of overall ESCO activity. Because the typical ESCO project costs more than $350,000, small commercial and industrial companies and residential customers are generally not being served by ESCOs."

B.1.4 Paper by Steven Nadel on market transformation entitled, "Adapting the Market Transformation Approach to Expand the Reach of Private Energy Efficiency Service Providers,' presented at the 9th National Energy Services Conference in 1998.

This paper examines how the market transformation approach can be applied to the development of private energy efficiency services industry. The paper reviews past and current efforts to foster the energy efficiency services industry, including bidding programs and standard performance contracting programs in California and New Jersey, as well as a discussion of market barriers. It concludes that a market transformation strategy to promote the energy efficiency services industry is likely to differ from a straight SPC program in two fundamental respects: (1) with a market transformation orientation, SPC resources would be targeted more carefully to specific measures (e.g., higher incentives for non-lighting measures than lighting measures), and customers (e.g., establishing tight incentive per customer caps to spread incentives among many customers, thereby exposing more customers to the benefits of working with energy efficiency service providers); and (2) reserving some resources for complementary efforts such as:

- development of case studies and other education efforts,
- improved publicity for existing accreditation programs,
- evaluating existing accreditation programs,
- database of references
- complaint resolution services
- simpler contracts and simpler/improved M&V procedures
- continued reform of the FEMP program, and
- experimentation with innovative financing approaches such as saving insurance and on-bill financing for small customers.

Barriers

Table 2 lists the possible strategies to overcome market transformation barriers as identified by Nadel.

Table 2
Barriers and Possible Strategies for Overcoming These Barriers

Barrier	Possible Strategies
Lack of customer awareness Customer skepticism	Education by service providers and independent sources about opportunities and how to work with service providers; preparation of case studies of successful projects
Contracting & verification confusing	Case studies of successful projects; publicize ESCo accreditation program; evaluate current accreditation program and how it can be improved; lists of satisfied customers for skeptics to contact; complaint resolution service; insurance; encourage customers to try one project (incentives for first project can help)
Energy a low priority for most customers, no advocate, treat as commodity	Education by service providers and independent sources of the savings that are possible (generally greater benefits to customers than restructuring alone will provide) as well as benefits of in-house energy manager; case studies of successful projects; market in tandem power sales and energy efficiency services; incentives and monetization of additional benefits reduce this barrier and if initial projects are successful, maybe overcome in long term
Don't want to disrupt operations	Case studies and referrals to demonstrate contractor competence; perhaps work in conjunction with established consultants who already have relationship with customer; flexibility in working with customer on scheduling—work at times that will have minimal impact
Complicated decision-making	Case studies of customers who have implemented simplified decision-making schemes and the benefits they have achieved; continue to work to improve government procurement process
Reluctance to try new technologies & approaches	Appeal to financial decision-makers with financial analyses; encourage customers to try an initial pilot project (incentives will help); insurance; case studies of successful projects using new approaches/technologies
Limited supply of capable firms	Encourage/incent local/national firms to set up local offices; provide training/advice for new local entrants; loan guarantees or insurance to reduce cost of capital; promote alliances with experienced firms
Shortage of experienced staff	Institute college level programs to help train entry-level employees; shorter training programs for people with some experience
High transaction costs	Streamline contracts and M&V; bundle several projects into a single contract; monetize additional benefits or develop innovative financing approaches to help cover transaction costs

B.1.5 Paper from David S. Dayton on retail energy services companies entitled, "RESCO Product Development: A Malthusian View," presented at the 9th National Energy Services Conference in 1998.

This paper explores the growth of retail energy services companies (RESCOs) created by electric/gas utilities. It puts forward that most RESCOs are placed in unregulated subsidiaries, and their support remains mostly cost-based rather than revenue-dependent for the moment, however, the support will erode rapidly in the next few years, leaving RESCOs exposed to a harsh competitive climate where many will starve. Table 3 presents a partial list of ESCOs acquired or created by utility companies.

Table 3
Partial List of RESCOs

ESCOs Acquired by Utilities (acquiring utility)	RESCOs Formed by Utilities
CES Way (Energy Pacific)	AEP Energy Services
Cogenex: Citizens Conservation (Eastern Utilities	Atlantic Energy/Delmarva—Connectiv
Coneco (Boston Edison)	BECo—Energy Vision (interest sold to Williams)
Energy Investment (Duke)	BG&E—Constellation
Energy Masters (Northern States Power)	Brooklyn Union Gas Energy Services
EPS (was majority owned by PECo, now divested)	Carolina Power & Light—SRS
HEC (Northeast Utilities)	Central Hudson G&E Energy Services
Noresco (formed by NEES, then independent, then	Central Maine—Combined Energy
acquired by ERI; Conogen, IEC, Pequod and Scallop also	Commonwealth Edison Energy Services
acquired by ERI)	Edison Source (CA)
Parke Industries (CP&L)	Duke Solutions
Tescor, Canada (Duke)	Entergy Enterprises
XENERGY (NYSEG)	First Energy Services
	FPL Energy Services
	GPU—ENCON Services
	HL&P Energy Services
	Illinova Energy Partners
	KCP&L—The Conservation Group
	LG&E—Enertech
	NEES—AllEnergy
	NIPSCO/Bay State Gas—Energy USA; Savage Engineering
	Northeast Utilities—Select Energy
	Pacificorp—Energy Works
	PECO-Exelon
	PEPCO Services
	PG&E Energy Services (was Vantus)
	PSE&G—Energis Resources
	Sempra Energy Solutions (Enova & Pacific EnterprisesJV)
	Southern Development & Investment Group

(continued)

Table 3 (continued)
Partial List of RESCOs

ESCOs Acquired by Utilities (acquiring utility)	RESCOs Formed by Utilities
	TU Energy Services Utilicorp (with PECO)—Energy One (recently shut down) VA Power—Evantage WEPCO—Wisvest WWP—Avista Advantage

B.1.6 Paper by Margaret Suozzo and Jennifer Thorne on examining success of market transformation initiatives entitled, "Market Transformation Initiatives: Making Progress," American Council for an Energy-Efficient Economy, May, 1999.

This paper reports on the progress of market transformation initiatives for nine products and services in the U.S. Market. The six residential initiatives reviewed target: resource-efficient clothes washers, home lighting, windows, consumer electronics, residential air conditioning and geothermal heat pumps. The three commercial/industrial initiatives reviewed target: exit signs, new building commissioning, and premium efficiency motors. The paper also provides brief updates on several other products addressed in a 1996 paper by the same authors.

The paper notes that the status of market transformation efforts has significantly changed since their 1996 analysis, including "the emergence of better-defined market transformation evaluation approaches and corresponding evaluation data" allowing for more detailed and accurate analysis of market effects.

Findings

The paper finds that "there is no single 'best approach' to market transformation. Instead, program planners and implementors can draw on a range of program elements (e.g. labeling, incentive, marketing, and codes and standards) and tailor a market transformation initiative to the specific characteristics of the market and products or services under consideration. In some cases (e.g. high-value consumer electronics products), a national labeling effort alone can facilitate market transformation while in other cases vigorous promotion, incentives, and regional/local efforts are required, and mandatory standards may be needed to complete the transformation."

"Thus far, the market transformation approach is meeting with mixed success...Of the nine initiatives:

- clothes washers, home electronics, and exit signs are moving *toward market transformation*;
- residential lighting, windows, and building commissioning are *making steady progress*; and
- residential air conditioning, ground source heat pumps (for residential customers), and premium motors are *making limited or little progress.*" [emphases in original]

Lessons Learned

The paper proposes the following three overall lessons:

1. "Market transformation activities for products and services with high non-energy benefits, low incremental costs, and relatively simple market structures enjoy more success."
2. "National and regional coordination can facilitate market transformation"
3. "Improved data are needed to better understand market changes."

B.1.7 Paper by Martin Kushler and George Edgar evaluating the impacts of the New Jersey Program entitled, "Lessons from Granddaddy: Observations from the evaluation of the New Jersey PSE&G Standard Offer Program," presented at the International Energy Program Evaluation Conference in 1999.

This paper presents the results of an evaluation of the New Jersey Public Service Electric and Gas (PSE&G) "Standard Offer" program. The paper provides background on the evolution of the program, earlier evaluation efforts, current results and lessons learned. The program consisted of two different phases.

Program Description

The first phase (SO1) "targeted an initial total savings goal of 150 MW of summer prime period demand reduction. Payment levels were set based on avoided costs estimated through an earlier utility planning cycle..." The second phase (SO2) had substantially reduced priced payment levels "to reflect updated and reduced estimates of utility avoided costs for electricity supply." SO2 also included a major restriction in the scope of eligibility for fuel-switching projects, prorated payments for facilities that switched to an electric supplier other than PSE&G; and reliance solely on ESCOs to market and promote the program.

Results

Overall, the programs were found to be cost-effective and customers were generally satisfied. ESCOs were generally pleased with the program concept, but both ESCOs and some large customers reported dissatisfaction with the way the program was administered in terms of "delays in processing and establishing acceptable M&V protocols [and] payment levels for

project savings had been cut too much in the SO2 program. (They were reduced approximately 27% from the SO1 level.)"

"The SO1 programs developed into an extensive and robust energy efficiency acquisition mechanism...and had at least some inclusion of non-lighting measures...In contrast, the SO2 program has a dramatic fall-off in participation, was widely criticized, lost almost all small customer participation, and became almost exclusively focused on large lighting projects."

Lessons Learned

The authors identified the following lessons learned through the evaluation process:

- *Price matters.* "Not only were both ESCO and customer reported free-ridership levels very low...but the dramatic fall-off in participation and the exodus of ESCOs from the program under SO2 provide substantial validation that the financial incentive was a key motivation and that the Standard Offer program as not just dishing out money to firms which were going to implement the measures anyway."
- *Program related costs affect the price required.* "...it is not necessarily the absolute price, but rather the net of price minus associated program costs, which determines ESCO interest...In particular [ESCOs] cited the costs associated with the complex, long-term (often 10 years or more) M&V requirements required, as well as the costs resulting from lengthy delays in the project approval process and the business risks associated with that delay and uncertainty."
- *Achieving comprehensive (i.e., non-lighting) measures may require differentiated pricing and streamlined M&V.* "...the SO program[s] [were] not very effective at reaching non-lighting measures...The interviews with ESCOs...as well as with customers, repeatedly pointed to two fundamental barriers. First, the costs and risks associated with M&V requirements for certain non-lighting measures *e.g. variable load) were perceived as substantial...Second, the standardized payment levels, particularly under SO2, were seen as simply not sufficient to cover the extra measure costs and business risks associated with the non-lighting measures."
- *Reaching the small commercial market requires a higher price.* "ESCOs which had targeted the small commercial market described in some detail the additional transaction costs (e.g., marketing and negotiating and bundling numerous small contracts) and business risks (e.g. occupant turnover) associated with serving that market segment."
- *Aggressive and coordinated program promotion is important.* "...PSE&G ceased promotion of the program leaving that responsibility to the individual ESCOs. Not only did participation decline precipitously, but many customers and ESCOs interviewed cited the lack of promotion as an important reason for decline in participation, and lamented that lack of promotion."

Other related observations include:

- *Large scale resource acquisition program can have market transformation effects.* "Although not designed as a market transformation program, it seems clear that the PSE&G SO program had some significant market transformation effects. A number of interview respondents specifically credited the SO program (due to its sheer volume and the associated market demand on suppliers and the awareness and experience effects on ESCOs and contractors) with having substantively transformed the lighting market for lamps and ballasts...they felt the program had impacted the market not only in New Jersey, but for much of the East Coast. This would seem to be important support for the proposition that resource acquisition and market transformation objectives need not conflict, but rather, can be complementary."
- *The anticipation of electric restructuring dampened customer interest in participating.*
- *Independent (non-utility) administration may be preferable in the future.*

B.1.8 Summary of Wisconsin Focus on Energy Program, a public/private partnership offering energy efficiency programs in Northeast Wisconsin.

"Wisconsin Focus on Energy is a $16.75 million, two-year pilot energy efficiency program for Northeastern Wisconsin whose main goal is to help prepare the market for a time when energy efficiency goods and services are no longer mandated by state governments." Their goal is to "demonstrate to the Wisconsin Legislature that it is politically and economically feasible to initiate programs that facilitate market preparation, and that such programs will sustain energy efficiency gains even after the pilot is completed.

The program is "funded by a public utility [Wisconsin Public Service Corporation], overseen by a state agency [Wisconsin Department of Administration (DOA)] and delivered by private sector contractors to:

- improve energy efficiency
- increase electric reliability
- save utility customers money
- reduce the need for fossil fuels
- improve the health of our economy
- reduce the possible negative environmental impacts of energy use."

The programs address: Large Commercial and Industrial, Residential and Small Commercial, Renewable Energy, Education and Training, Energy Efficiency Performance, Evaluation and Marketing.

Energy Efficiency Performance Program

The Energy Efficiency Performance (EEP) Program is the most relevant to the LNSPC program. "The EEP program's goals emphasize privatizing the provision of performance-based energy-efficiency products and services and include the following:

- Stimulate performance-based energy-efficiency business opportunities for local energy-efficiency service providers and encouraging the entry of non-local energy-efficiency service provider to the Wisconsin market.
- Contribute to the creation of a self-sustaining market for performance-based energy-efficiency products and services.
- Encourage customers to obtain performance-based energy-efficiency services directly from the private sector.
- Increase customer demand for private sector performance-based energy-efficiency products and services.

Specifically, the EEP Program is an over $4 million program that "provides training, risk sharing [50% of any penalty] and performance incentives" to service providers, also called Sponsors, which began July 1, 1999. The incentives call for 50% of guaranteed amount for first 3 years when target savings is met or exceeded, and an additional incentive for projects that achieve at least 30% of the savings from non-lighting end uses. Sponsors include lighting and HVAC contractors, energy services companies, architecture and engineering firms and manufacturers and distributors of energy efficient products."

"...the EEP program aims to involve a variety of facility types, such as grocery stores, offices hotels, and warehouses, in addition to the traditional MUSH market (municipalities, universities, schools, and hospitals). It also encourages efficiency improvements spanning a broad spectrum of technology upgrades, such as motor, HVAC, and process upgrades, in addition to the more common lighting efficiency upgrades."

"Because the program allows for a wide variety of technology upgrades, commercial business customers can work with Sponsors to determine the combination of upgrades that makes economic sense in their facilities. Sponsors receive payments after demonstrating their projects have achieved the desired energy cost savings over a one year period."

Differences from more traditional standard performance contract programs, such as those in California include:

- "The EEP program does not allow Sponsors to provide direct customer subsidies by "buying down" the first cost of a project. Instead, each participating Sponsor must develop a business plan that demonstrates how the Sponsor is investing in a sustainable business strategy."
- "It focuses more on viable business models, energy cost savings, and risk sharing, than it does on resource impacts or technology requirements."

- "The program requires a performance contract not just between the Administrator and the Sponsor, but also between the Sponsor and the customer.
- "The measurement and verification requirements for the EEP program are not driven by regulatory reporting requirements, but rather by what a customers requires from a Sponsor to demonstrate that the Sponsor's performance guarantees have been met."

Program Theory

The basic program theory identifies the following primary barriers affecting customers:

1. "unawareness of the savings opportunities that are available due to the bounded rationality and organizational practices that do not result in opportunities being pursued; and
2. for those opportunities they are aware of, uncertainty of the potential performance of the options."

Secondary supply-side barriers include:

1. "the inability of service providers to define a clear business case, value proposition or return on investment to help customers justify energy efficiency investments;
2. lack of effective sales and marketing strategies targeted to actual decision-makers (e.g. targeting CFOs rather than facility manager);
3. lack of focused business definition and service offering; and lack of sufficient attention paid to energy efficiency business opportunities by service provider management."

"The program will address performance uncertainties described as a primary market barrier [for customers] above by:

- encouraging vendors to lastingly offer more performance-based energy efficiency services by offering an initial program that gives them appropriate incentives to start offering such services; and
- developing new marketing tactics and new markets for performance-based services that they have already been offering."

"The program will address the supply side barriers through helping Sponsors to:

- develop clear and feasible business plans, including financial projections and marketing strategies;
- develop and invest in more sustainable sales strategies, such as creating clear and tangible value propositions, attractive financing options, strategic teaming arrangements, aggressive marketing campaigns, risk-sharing arrangements, and other strategies in addition to performance guarantees; and
- simplify their program benefits structure to focus on more viable business models, cost savings and risk sharing than on resource impacts or technology requirements."

Program Eligibility

Each program participant [Sponsor] must demonstrate business viability by showing "the market potential within the pilot territory of its targeted customers and proposed service offering, and the long-term viability and profit potential of its proposed service offering...The plan must also demonstrate that the offering is that the service or technology offering, contractual arrangement, or target market is substantively different than the applicant's current offerings"

Each program participant must also demonstrate project-specific viability by providing detailed information including "a technical description, energy cost savings guarantee, and contract terms offered to the customer.

Participants are also required to "enter into performance-based contracts with their customers. The minimum guaranteed energy cost savings specified in these contracts will serve as the basis for program payments to participants."

Evaluation

Schiller Associates, with subcontractor Franklin Energy Services is the EEP Program Administrator. Hagler Bailly Consulting, Inc. has been selected as the Evaluation Administrator. The evaluation efforts will include:

1. Tracking and Database Management
2. Measurement and Verification
3. Measurement of Energy and Demand Savings
4. Process Evaluation
5. Market Effects

Participating vendors and customers will be conducting M&V activities under the EEP Administrator's, Schiller Associates, oversight as part of their participation in the EEP program. Schiller Associates will be maintaining a database on program participants, M&V, and savings.

"The EEP program differs significantly from other performance contracting programs by having Sponsors and customers primarily determining the necessary M&V, with Schiller Associates providing an oversight and guiding role in regards to M&V instead of there being pre-determined M&V requirements. This design takes into account findings from other performance contracting programs where very rigorous M&V has been found to deter market effects. As a consequence, we see the primary researchable questions of this approach as, 'What is the effect of the program administrator's adopted strategy on the level of M&V conducted?' and 'What is the effect of the level of M&V conducted on the reliability of savings estimates and on the market effects realized by the program?' (The M&V activities that will take place to answer these questions will also be integrated into the process evaluation as well as the savings measurement function.)"

C

SURVEY INSTRUMENTS

This appendix contains full text versions of all survey instruments used in this study:

- 1999 LNSPC End-User Participant Survey
- 1998 NSPC Participant Re-Interview
- Participant EESP Survey
- Baseline Survey

1999 Large Nonresidential SPC Study

1999 LNSPC End-User Participant First-Year Survey

Prepared for
SCE

Prepared by
XENERGY Inc.

Interviewer _____

LNSPC Utility _____

Tracking # from Utility Dbase _____

Survey Number ___ ___ ___

Completion Date/Survey Length _____

IDENTIFY NAME OF SPONSORING EESP PROVIDED IN TRACKING DATABASE

IDENTIFY UTILITY IN WHICH APPLICATIONS SUBMITTED - PG&E, SCE, OR SDG&E FROM DATABASE

*****CORRECTED INFORMATION PER INTERVIEWEE (SPONSOR NAME or MEASURES INSTALLED)*****

_____

_____

END-USER PARTICIPANT INTERVIEW GUIDE – POSSIBLE LEAD IN MATERIAL

May I please speak with [CONTACT_____]? [**Confirm this person is responsible for participation decision.]**

Hello, my name is _____ and I am calling about your participation in [UTILITY's] Large Standard Performance Contract Program. I am with XENERGY, we are an energy research firm hired to conduct a statewide evaluation of this Program on behalf of the California Public Utilities Commission and with the cooperation of **[your local utility].**

We are interviewing firms that are participating in the 1999 Large Standard Performance Contract program to discuss a number of topics about the program. Your input to this research is extremely important. The interview will take between ***approximately 30 minutes [or longer]*** and any information that is provided will remain strictly confidential. We will not identify or attribute any of your comments or organization information. Is this a good time, or can we schedule a convenient time in the next couple of days to talk?

IF HESITANT: Your input to this survey is very important for ensuring the long-term success of these programs. Without input from the participants, we will have difficulty conducting a fair and complete evaluation of the program.

Thank you for taking part in this survey. The major purposes of this study are to (1) obtain feedback on the design and administrative aspects of the program, and (2) understand the characteristics of participants in the program and the types of activity the program has generated. This interview is focused on experiences with the program to date.

[If they request a contact at their local utility, the following are the appropriate MAE representatives, not the program managers]

PGE	Mary O'Drain	415-973-2317
SCE	Pierre Landry	626-302-8288
SDGE	Rob Rubin	858-654-1244

[ADD TERM AND ACRONYM DEFINITIONS]

RESPONDENT INFORMATION

RI1. First, I'd like to confirm the following information? [CONFIRM CONTACT INFO IN DATABASE; RECORD **BOLDED** ITEMS. COMPLETE ADDITIONAL INFO AS NECESSARY]

a. NAME	**h. PHONE**
b. TITLE	i. FAX
c. COMPANY	j. e-MAIL
d. STREET ADDRESS	
e. CITY	**k. INTERVIEWER**
f. ZIP	**l. CALL DATES**

RI1m. Could you please describe your role (regarding your firms participation in the LNSPC Program)?

_____

[BASED ON DATABASE DETERMINE IF SINGLE OR MULTI-SITE LNSPC APPLICATION THEN CONFIRM]

RI2. According to the LNSPC program records, your application(s) cover: **FROM DATABASE**: **NUMBER OF SITES**

Is this information correct?

Yes, that is the correct number of sites.....1
No, information appears incorrect [**CLARIFY**].....2
Don't Know/Refused **[CONFIRM RIGHT CONTACT]**.....99

****IF SELF-SPONSOR ASK RI4, IF EESP SPONSOR ASK RI5, IF COMBO CONFIRM W. BOTH****

RI4. According to our records, you are your own sponsor for your 1999 LNSPC project(s) :
Is this information correct?

Yes.....1 SKIP TO EC1
No, information appears incorrect.....2 ASK RI5
Don't Know/Refused **[CONFIRM RIGHT CONTACT]**.....99

RI5. According to our records, the energy services firm that is the sponsor of the LNSPC program application for which your organization is a host site is: **STATE SPONSOR NAME [FROM DATABASE]**

Is this information correct?

Yes.....1
No.....2
Don't Know/Refused **[TERMINATE, CONFIRM RIGHT CONTACT]**.....99

IF NO, ENTER CORRECT EESP NAME:_____

ESTABLISHMENT CHARACTERISTICS

I'd like to ask you a few questions about your organization and the facilities participating in the LNSPC.

EC1. And what is the primary business of the **company/organization**? [ENTER VERBATIM]
[CHECK APPROPRIATE CODE] __ Commercial __ Industrial __Institutional __ Agricultural __ Other
_____
_____
_____

EC2. [IF SINGLE-SITE PARTICIPANT (RI2=1) ASK]
Approximately how large is your organization's space in this facility?

[ELSE IF MULTI-SITE (RI2=2), ASK]
What is the **average size** of your organization's space **among these participating facilities?**

_____sq. ft.
CODE 98 FOR DON'T KNOW; 99 FOR REFUSED, ROUGH ESTIMATE IS OK

EC3. Does your organization.....

Own and occupy	1	SKIP TO EC5
Lease from others	2	
Other	3	
Don't Know	98	SKIP TO EC5
Refused	99	SKIP TO EC5

EC4 (For these participating facilities,) does your organization pay its own electric bill directly to [PACIFIC GAS & ELECTRIC/ SOUTHERN CALIFORNIA EDISON / SAN DIEGO GAS & ELECTRIC] or is electricity provided by the owner under your lease arrangement?

Pay own electric bill	1
Part of the lease arrangement	2
Some sites pay own bill, other sites part of lease	3

[ACCEPT EC4=3 ABOVE ONLY IF RI2=2]

EC5 [IF SINGLE-SITE PARTICIPANT (RI2=1) ASK]
What is your best estimate of your average monthly electric bill **at this facility**?

[ELSE IF MULTI-SITE (RI2=2), ASK]
What is your best estimate of your **average** monthly total electric bill across **all participating sites**? Would you say it is...

< $10,000 1
$10,000 - $49,999 2
$50,000 - $99,999 3
100,000 - $500,000 4
> $500,000 5
Don't know 98
Refused 99

EC6. What kind of organization is this? Is there a single site, or are there multiple sites?

Single site 1
Multiple sites 2
Don't Know 98
Refused 99

PARTICIPATION REASONS

Now let's talk about your decision to participate in the 1999 LNSPC.

PA1. What was the MOST important reason your organization decided to participate in the 1999 LNSPC program? [READ ONLY IF NEEDED]

- Acquiring the latest technology....1
- Saving money on electric bills....2
- Obtaining a rebate....3
- Replacing old or broken equipment....4
- Knowing the program was sponsored by utility....5
- Improving measure performance for employees and/or customers....6
- Helping to protect the environment....7
- Previous experience with other utility programs....8
- Recommended by utility account reps....9
- Recommended by contractors....10
- Participation in previous years....11
- Part of a broader office remodeling/renovation....12
- To increase safety....13
- Other [SPECIFY:] _____....14
- DK/NA/refused....99

LNSPC PARTICIPATION - ID DECISION MAKERS

Now I'd like to ask some questions about the measures you submitted as part of your LNSPC application.

PA3. How far along are you in the 1999 LNSPC application process? Please tell me how many applications you have in each of the following categories?

[BE PREPARED TO REMIND/ EXPLAIN MILESTONES]

		Number of Applications at Each Stage					
Utility	**Canceled**	**DPA Accepted**	**Project Installation Report**	**First-Year M&V Report**	**First-Year M&V Payment**	**Second-Year M&V Report**	**Don't Know**
PG&E							
SCE							
SDG&E							
ALL							

[DO AS CONFIRMATION IF INFO AVAILABLE FROM UTILITY TRACKING DATABASES]

PA4. Besides yourself, who else at your organization was involved in authorizing the decision to enter the SB SPC program, and what were their roles in the decision making process? [Ask as needed to confirm you are speaking with the best person to answer the NTG questions]

Name:_____ Name:_____

Role:_____ Role:_____

Phone:_____Phone:_____

PA5. And who was primarily responsible for the specification of the installed equipment?

Equipment type:_____ Equipment type:_____

Name:_____ Name:_____

Phone:_____Phone:_____

[CONFIRM/CHECK AGAINST DATA BASE RECORDS]

THIRD-PARTY FIRMS

****IF SELF-SPONSOR ASK PE1, EESP SPONSORS SKIP TO NEXT SECTION TO CONFIRM MEASURES****

PE1a. Are you working with any third party firms as part of your 1999 LNSPC application?

Yes	1	
No	2	SKIP TO PE1d
Don't Know/Refused	99	SKIP TO PE1d

PE1a. Could you please specify the Name of the firm(s)

Primary Firm 1_____ Secondary Firm 2_____

PE1c. And what was their role? (how significant were they in your decision to do the project?)

_____

_____

_____

PE1d. [DOUBLE CHECK] And are you planning to use your in-house staff or an outside firm to implement the M&V requirements ?

1. In-house
2. Outside firm, ➔ PE1b Request name: _____

[IN REMAINDER OF SURVEY "FIRM" WILL REFER TO PRIMARY FIRM FROM ABOVE]

PE2. Many of the companies participating in the 1999 LNSPC chose to work with third-party energy services firms that acted as the project sponsor on their applications. Why did you choose to submit your application(s) as your own project sponsor**? [ENTER RESPONSES VERBATIM**]

_____

_____

_____

_____

_____

[DECIDE HERE IF SELF SPONSOR IS CONSIDERED TO BE DOING ALL WORK THEMSELVES OR HAS 3rd PARTY PARTICIPATION BASED UPON THE ANSWERS TO PE1a and PE1c]

LNSPC PARTICIPATION - ID/CONFIRM MEASURES

[**DISCUSS WITH INTERVIEWEE THE MEASURES YOU ARE GOING TO ASK QUESTIONS ABOUT. DETERMINE WHICH MEASURES THEY ARE FAMILIAR WITH AND WHETHER THEY OR SOMEONE ELSE IS THE MORE APPROPRIATE PERSON TO ANSWER THE QUESTIONS. IF NECESSARY, CONDUCT ADDITIONAL INTERVIEWS WITH OTHERS TO ACCURATELY ANSWER THE QUESTIONS ON THE FOLLOWING PAGES.**]

[**IF MEASURES FROM DATABASES ARE UNAVAILABLE, ASK RESPONDENT WHICH MEASURES WERE INSTALLED AS PART OF THE 1999 LNSPC PROGRAM AND LIST BELOW**]

Interviewee Name (if different from interviewee on pg. 1):_____

Measures covered by this section.
Use additional sections as necessary for different interviewees or for breakout of answers by measure types.

FILL IN TO COMPLEMENT, AS NEEDED INFO AVAILABLE FROM DATABASE.

List Measures by type, Describe as Necessary. Or attach and reference sheet with measures currently tracked in program database.
1.
2.
3.
4.

Section # _____ **of** #_____ **sections** for this LNSPC Survey Number.

PROGRAM-RELATED DECISION MAKING SECTION - NET-TO-GROSS

[INFORM THE INTERVIEWEE THAT THE FOLLOWING QUESTIONS PERTAIN TO THE PARTICULAR ENERGY EFFICIENCY MEASURES THAT ARE TO BE INSTALLED AS PART OF THE 1999 LNSPC PROGRAM. ASK THEM TO LET YOU KNOW IF THE RESPONSES VARY BY MEASURE. USE MULTIPLE FORMS IF ANSWERS APPEAR TO VARY SIGNIFICANTLY BY MEASURE OR PROJECT TYPE FOR THIS SECTION.]

PD1a Why did you decide to install ***Program-Related Equipment***? [DO NOT READ]

Needed to replace older equipment 1
Needed to add equipment because of a remodel, build-out, or expansion 2
Wanted to reduce our energy costs 3
Wanted more control over how the equipment was used. 4
Wanted to improve measure performance 5
Don't Know/Refused 6
Other_____ ..... PD1a1. Describe_____ 7

[DESCRIBE AS NEEDED]_____

_____

PD1b Which of the following statements best describes the performance and operating condition of the equipment you replaced as part of the 1999 program?

New equipment installed, did NOT replace pre-existing equipment 1
Existing equipment was fully functional 2
Existing equipment was fully functioning, but with significant problems 3
Or, existing equipment had failed or did not function. 4
Don't Know/Refused 98
Other_____ ..... PD1b1. Describe_____ 7

PD 2 If this is the first time you're installing ***Energy Efficiency Equipment,*** where did you first hear about it? [READ ONLY AS NEEDED]

1 Contractor
2 Architect / Engineer
3 Equipment Vendor
4a *PG&E representative or program literature (confirm, regulated distribution company)*
4b SCE representative or program literature (confirm, regulated distribution company)
4c SDG&E representative *or program literature (confirm, regulated distribution company)*
5 Other non-utility literature, including trade publications
6 Self knowledge/Education
7 Business colleague / Professional association / Tradeshow
8 From parent company
9 **Previous installation**
10 Energy Services Company, often referred to as ESCOs
11 An unregulated company that provides electricity supply
12 Energy Efficiency Program (non-utility)
11 OTHER **[SPECIFY, OK TO PUT NAME OF COMPANY]** _____
12 DON'T KNOW / REFUSED

PD3 How did you first learn of the LNSPC Program? [DONT READ; PROBE IF SAME SOURCE AS PD2]

Specify name of company/source:_____

CIRCLE CLOSEST CATEGORY

1 Contractor
2 Architect / Engineer
3 Equipment Vendor
4a *PG&E representative or program literature (confirm, regulated distribution company)*
4b SCE representative or program literature (confirm, regulated distribution company)
4c SDG&E representative *or program literature (confirm, regulated distribution company)*
5 Other non-utility literature, including trade publications
6 Self knowledge/Education
7 Business colleague / Professional association / Tradeshow
8 From parent company
9 Previous installation
10 Energy Services Company, often referred to as ESCOs
11 An unregulated company that provides electricity supply
12 Energy Efficiency Program (non-utility)
11 OTHER **[SPECIFY, OK TO PUT NAME OF COMPANY]** _____
12 DON'T KNOW / REFUSED

PD 4a When did you first learn about the LNSPC Program? Was it **BEFORE** or **AFTER** you decided to install the ***Energy Efficient Equipment*** that you plan to install?

1 BEFORE
2 SAME TIME SKIP TO PD4c
3 AFTER SKIP TO PD4c
9 DON'T KNOW / REFUSED

PD 4b Was it **BEFORE** or was it **AFTER** you first began to think about installing ***Energy Efficient Equipment***?

1 BEFORE
2 SAME TIME
3 AFTER
9 DON'T KNOW / REFUSED

PD4c Which of the following best describes the process by which you decided to install the ***Energy Efficiency Equipment?***

1 Developed the idea ourselves and decided solely on our own to pursue installation
2 Developed the idea ourselves but were convinced by a third-party to pursue installation
3 Received the idea from a third-party and were also convinced by this party to pursue installation
4 Received the idea from a third-party but decided on our own to pursue installation
5 Other ➨PD4c1. Describe_____
9 DON'T KNOW / REFUSED

[RECORD ANY EXPLANATORY COMMENTS] _____

_____

_____

****IF SELF-SPONSOR DOING ALL WORK THEMSELVES, SKIP TO PD6c, IF SELF SPONSOR WITH EESP HELP, SKIP TO PD6a, ELSE CONTINUE****

PD4d. Who initiated contact? Did **SPONSOR** approach you or did you approach them to discuss installing the ***Energy Efficiency Equipment?***

1 Customer initiated contact
2 EESP initiated contact
3 Other ➨PD4d1. Describe_____
9 DON'T KNOW / REFUSED

PD5 As part of your participation in the LNSPC program, the Energy Efficiency Service Provider that is the sponsor of the program application for your organization will receive an incentive from **UTILITY** payable over two years that is based on the level of energy savings demonstrated to result from your project.

PD5a. Prior to this call, were you aware that incentives will be received by **SPONSOR,** from the LNSPC program for this project?

Yes 1
No 2

PD5b. Which of the following statements best describes the arrangement you have with **SPONSOR** with respect to allocation of the incentives from the LNSPC program? [READ LIST AND SELECT ONLY ONE]

Program incentives will be used by your organization 1
Program incentives will be used by your
LNSPC Project Sponsor 2
Program incentives will be split between your organization and your
LNSPC Project Sponsor, or you are receiving a reduced fee? 3
Other _____ 4
Don't know 98
Refused 99

PD6a. How significant was the overall value of the services provided by **SPONSOR/FIRM** in influencing your decision to install the ***Energy Efficiency Equipment***? On a scale from 0 to 10 where 0 is not significant at all and 10 is extremely significant, how significant would you say **SPONSOR/FIRM** was ...
[RECORD PD6a and PD6b BY MEASURE OR END USE IF NEEDED]

_____[0-10, DK]

PD6b. Please describe the specific ways in which **SPONSOR/FIRM** contributed, if at all, to your decision to install the ***Energy Efficient Equipment***?

_____

_____

_____

PD6c. How significant was the LNSPC program incentive in influencing your decision to install the ***Energy Efficiency Equipment***? On a scale from 0 to 10 where 0 is not significant at all and 10 is extremely significant, how significant would you say the program incentive was ...**]**

_____[0-10, DK]

PD7a. Without the LNSPC program, [**READ NEXT CLAUSE FOR CUSTS WORKING WITH 3rd PARTY FIRMS**:] including both the incentive **and** the contribution from **SPONSOR/FIRM,** how likely is it you would have installed the ***Energy Efficient Equipment***? Would you…

1 Definitely would NOT have installed SKIP TO PD 9a
2 Probably would NOT have installed SKIP TO PD 9a
3 Probably would have installed
4 Definitely would have installed
9 DON'T KNOW / REFUSED

PD 8 Without the LNSPC program, how likely is it that the equipment you purchased would have been *as energy efficient* as the equipment you installed with the incentive? Would you say . . .

1 Probably NOT as efficient
2 Probably as efficient
3 Not applicable for measure (e.g. VSD)
9 DON'T KNOW / REFUSED

PD 8b Without the LNSPC program, would you have installed the ***Energy Efficient Equipment*** at about the same time as currently planned or over a year later? [If over 1 year later, probe for best estimate of how many years later.]

1 Same Time To Less Than 1 Year SKIP TO PD10
2 Over 1 Year Later PD8c. Approximately how many years later? _____ SKIP TO PD10
9 DON'T KNOW / REFUSED

PD 9a Without the LNSPC program, , [**READ NEXT CLAUSE FOR CUSTS WORKING WITH 3rd PARTY FIRMS**:] including both the incentive **and** the contribution from **SPONSOR**, what type of equipment would you have most likely installed? Would you say. . .

1 Standard efficiency equipment
2 Equipment with above-standard efficiency but with lower efficiency than the equipment that was actually installed
3 Would not have installed anything
9 DON'T KNOW / REFUSED

PD 9b Would you have installed the ***Energy Efficient Equipment*** at a later date? (How many years later)
[If over 1 year later, probe for best estimate of how many years later.]

1 Same Time To Less Than 1 Year
2 Over 1 Year Later PD9c. Approximately how many years later? _____
9 DON'T KNOW / REFUSED

PD10a. Does your organization apply long-term investment analysis to energy equipment selection such as estimates of payback periods, life cycle costs or internal rate of return?

Yes	1	
No	2	SKIP TO PD11
Don't Know/Refused	99	SKIP TO PD11

PD10b. And, typically, how many years or less must the project payback be? _____ Years

[**TRY TO FORCE ANSWER IN PAYBACK TERMS EVEN IF IRR OR LCC USED**]

PD 11 Approximately what percent of the incremental costs of the high-efficiency measures you are implementing as part of the 1999 LNSPC would you estimate are being paid for by the program incentive payments?

ADD MORE LINES IF NEEDED BY MEASURE OR END USE

[CLARIFY: INCLUDING ALL INCENTIVES OVER 3 YEAR PERIOD, E.G., ORIGINAL INCENTIVE LEVELS OF 5.5 cents/kWh saved lighting, 16.5 cents/kWh saved HVAC&R, and 8.0 cents/kWh saved Other]

% of Incremental Cost Paid _____
Don't Know/Refused_____

[**CODE AS DON'T KNOW IF CANT GIVE WITHOUT CALCULATING]**

PD 12a. Have you calculated the payback(s) or used other 'financials' for these projects?

Yes	1	
No	2	SKIP TO P1
Don't Know/Refused	99	SKIP TO P1

PD 12b. And what do you estimate the payback(s) would have been with OR without the incentives?

ADD MORE LINES IF NEEDED BY MEASURE OR END USE

12.b.1 Payback <u>with</u> Incentives _____

12.b.2 Payback <u>without</u> Incentives _____

Don't Know/Refused_____

[CODE AS DON'T KNOW IF CANT GIVE WITHOUT CALCULATING]

LNSPC PROCESS-RELATED EXPERIENCE

P.1 Based upon your experiences, what do you view as the primary strengths of the LNSPC program? (what did you like about the program)

_____

_____

_____

P.2 Based upon your experiences, what do you view as the primary weaknesses of the 1999 LNSPC program? (what didn't you like about the program)

_____

_____

_____

P.3 Are payment procedures and timing reasonable?

Yes 1
No 2
Don't Know/Refused 99

P3a. Please Explain: _____

_____

_____

_____

P4a. Would you say that the overall program experience with **[UTILTY]** was … [**READ LIST**]?

Excellent 1
Good 2
Acceptable, about what expected 3
Somewhat poor 4
Very Poor 5
No contact with utility 6
[DO NOT READ:] DK/NA 9

P4b. Why do you say that? [**RECORD VERBATIM**]

_____

_____

_____

PROGRAM NON-SPONSORS EXPERIENCE WITH 3RD PARTY FIRMS

THIS SECTION FOR CUSTOMERS WORKING WITH 3rd PARTY FIRMS ON 1999 LNSPC

****SELF-SPONSORS DOING ALL WORK THEMSELVES SKIP TO NS11 ON PAGE 19****

Now I want to switch back to a few more questions about your work with SPONSOR/FIRM

NS1. Did you get multiple bids for your 1999 LNSPC project(s)?

Yes 1
➔ NS1b. How many? _____
No 2
Don't Know/Refused 99

NS2a. What were the reasons that you selected the firm you are using to perform your 1999 LNSPC-related project work? [DO NOT READ LIST, RECORD ALL]

Needed urgent/immediate replacement 1
Timeliness of response (not urgent/immediate) 2
Lower price/up-front cost 3
Lower maintenance cost 4
Ability to get rebate/incentive 5
Worked with contractor before/prior experience 6
Contractor seemed easier to do business with 7
Contractor reputation/referral 8
Equipment reputation/recommendation 9
Higher efficiency level 10
Better non-energy (comfort, quality) performance 11
Equipment availability/Lead time 12
Already under contract with them for EE or other services 13
Other [SPECIFY:] _____ 88
DK/NA 99

NS2b. And which was most important? [**RECORD ONLY ONE**]

Needed urgent/immediate replacement 1
Timeliness of response (not urgent/immediate) 2
Lower price/up-front cost 3
Lower maintenance cost 4
Ability to get rebate/incentive 5
Worked with contractor before/prior experience 6
Contractor seemed easier to do business with 7
Contractor reputation/referral 8
Equipment reputation/recommendation 9
Higher efficiency level 10
Better non-energy (comfort, quality) performance 11
Equipment availability/Lead time 12
Already under contract with them for EE or other services 13
Other [SPECIFY:] _____ 88
DK/NA 99

NS3. Had you worked with **SPONSOR/FIRM** before your participation in the 1999 LNSPC program?

Yes 1
No 2
Don't Know/Refused 99

NS4a. For the purposes of this survey, we are defining Energy Performance Contracting as follows: a retrofit or new construction project in which energy savings are measured and verified (based on assumptions regarding the level of operations and the cost of energy being saved) and the company performing the work is paid only from total dollar savings actually produced by the project.

Would you describe **your** contractual arrangement with SPONSOR/FIRMNAME as an **energy performance contract, fee for service contract** or **something else**?

Energy performance contract 1
Shared savings (cust has some risk) 2
Guaranteed savings (EESP has all risk) 3
Fee-for-service/equipment contract 4
Combination: performance contract & fee-for service 5
EESP paid from incentives: fixed fee or 1st payment only 6
EESP paid from incentives: tied to savings or % of all 3 payments 7
Part of larger contract 8
Other 9
NS4a1 (please describe)_____
Don't Know/Refused 99

NS4b. Could you please describe the basic structure of the contract? [**PROBE: IF PERF. CONT. OR OTHER, GUARANTEED VS. SHARED SAVINGS, IS EESP PAID UPFRONT OR FROM SAVINGS OVER TIME, ARE SAVINGS STIPULATED OR BASED ON M&V**]

_____

_____

_____

[IF CONTRACT TYPE HAS PERFORMANCE ASK NS4c, ELSE SKIP TO NS5]

NS4c. And why did you choose a contract with a performance element for this project(s)? [**DON'T READ LIST**]

Uncertainty over estimates of savings.....1
Didn't trust EESP.....2
EESP only offered to do work under performance contract.....3
Lack of access to capital, needed EESP to finance.....4
Wanted to share risk with third-party.....5
Able to use energy-efficiency savings to make equipment/facility upgrades that wouldn't be possible otherwise.....6
Other SPECIFY BELOW 7

NS4d. [**DESCRIBE VERBATIM AS NECESSARY]**:

_____

_____

NS5. Are there any other energy-related products or services that you are receiving from **SPONSOR/FIRM** besides those that are included in your 1999 LNSPC application?

Yes 1
No .....2 SKIP TO NS6a
Don't Know/Refused .....99 SKIP TO NS6a

NS5b. And could you please describe those?

_____

_____

_____

NS6a. Were any of the energy-efficiency products, services, opportunities or M&V approaches provided by the **FIRM**(s) you worked with on your 1999 LNSPC project(s) new to you at the time they were offered? (Were there any you had not been aware of?)]

Yes 1
No 2
Don't Know/Refused 99

NS6b. Please elaborate. [CLARIFY IF UNDER OR NOT UNDER PROGRAM]

_____

_____

_____

NS7a. And based on your experience with **SPONSOR/FIRM** to date, how satisfied would you say that you are with the overall value and quality of services received, would you say you are [**READ LIST**]?

Extremely satisfied 1
Somewhat Satisfied 2
Somewhat Dissatisfied 3
Extremely dissatisfied 4
Don't Know/Refused 99

NS7b. Why do you say that? **[ASK AS NEEDED, RECORD VERBATIM]**

_____

_____

_____

NS8a. And would you recommend **SPONSOR/FIRM** to other customers either inside or outside your organization or provide a positive reference for **SPONSOR/FIRM**? Or have you already?

Yes, would.....1
Yes, have already 2
No 3
Don't Know/Refused 99

NS8b. And why is that? **[ASK AS NEEDED, RECORD VERBATIM]**

_____

_____

NS9a. And do you plan to use **SPONSOR/FIRM** in the future for other energy-efficiency related services for your organization? Would you say you:

Definitely will use again 1
Probably will use again 2
Probably won't use again 3
Definitely won't use again 4
Don't Know/Refused 99

NS9b. And why is that? [**ASK AS NEEDED]**

_____

_____

_____

****[IF CONTRACT TYPE HAS PERFORMANCE ELEMENT ASK NS10, ELSE SKIP TO NS11]****

NS10a. And how about your experience with the performance contracting aspects of your 1999 LNSPC project(s), would you say you are [**READ LIST**]?

Extremely satisfied 1
Somewhat satisfied 2
Somewhat dissatisfied 3
Extremely dissatisfied 4
Don't Know/Refused 99

NS10b. Why do you say that? [**RECORD VERBATIM**]

_____

_____

_____

[SELF-SPONSORS PICK UP AGAIN HERE]

NS11a. And how satisfied would you say you are with the performance of the *energy-efficiency measures* you implemented as part of the 1999 LNSPC(s) [**READ LIST**]? Would you say:

Extremely satisfied 1
Somewhat Satisfied 2
Somewhat Dissatisfied 3
Extremely dissatisfied 4
Don't Know/Refused 99

NS11b. Why do you say that? [**RECORD VERBATIM, CAPTURE DIFFERENCE BY MEASURE IF NEEDED**]

_____

NS12a. Have you, or do you plan to, share the results of your experience with your 1999 LNSPC project(s) inside your organization, either in terms of your experience with the efficiency measures you implemented or with respect to your experience with the firms with whom you worked?

Yes	1	
No	2	ASK NS13
Don't Know/Refused	99	ASK NS13

NS12b. **PROBE TO GET SOME SPECIFICS ON TO WHOM AND HOW AND WHAT THEY PLAN TO COMMUNICATE, TO WHOM, HOW FORMAL AND THROUGH WHAT MEANS**

_____

_____

_____

NS13a Do you plan to share the results of your experience with your 1999 LNSPC project(s) outside your organization, either in terms of your experience with the efficiency measures you implemented or your experience with the firms with whom you worked?

Yes	1	
No	2	ASK NS14
Don't Know/Refused	99	ASK NS14

NS13b. **PROBE TO GET SOME SPECIFICS ON TO WHOM AND HOW AND WHAT THEY PLAN TO COMMUNICATE, TO WHOM, HOW FORMAL AND THROUGH WHAT MEANS**

_____

_____

_____

_____

NS14a. As a result of your participation in the program, did you or do you plan to implement any additional energy efficiency measures elsewhere at this facility or at other facilities of your organization?

Yes	1	
No	2	SKIP TO NS18
Don't Know/Refused	99	SKIP TO NS18

NS14b. **PROBE**: Please describe which measures and why?

_____

_____

_____

_____

NS15a. And how significant was your 1999 LNSPC program experience in your decision to implement additional measures? [**CLARIFY PROGRAM EXPERIENCE REFERS TO ALL FEATURES INCLUDING INCENTIVES, M&V, EXPERIENCE WITH ESCOs THAT WOULD NOT HAVE OCCURRED OTHERWISE, ETC**.]

Extremely significant	1
Somewhat significant	2
Somewhat insignificant	3
Extremely insignificant	4
Don't Know/Refused	99

NS15b. **PROBE**: In what way?

_____

_____

_____

NS16. Will this implementation be done inside or outside of California?

Inside CA	1	
Outside CA	2	SKIP TO NS18
Both	3	
Don't Know/Refused	99	SKIP TO NS18

NS17. For the work in CA, do you plan to implement these measures whether or not incentives are available?

Yes, most or all of measures	1
Yes, some of measures	2
No, none of measures	3
Don't Know/Refused	99

****SELF SPONSORS DOING <u>ALL WORK THEMSELVES</u> SKIP TO MV1****

NS18. How, if at all, has your experience in the 1999 LNSPC program affected your general opinion about the energy service companies and other energy service providers? [**CLARIFY: NOT OF SPECIFIC PROVIDER BUT OF PROVIDER TYPE, E.G., THE ESCO INDUSTRY, CONTRACTOR INDUSTRY, ESP INDUSTRY ETC.**] [READ ONLY AS NEEDED]

Opinion of service providers is **better** as a result of participation	1
Opinion of service providers is **worse** as a result of participation	2
Opinion of service providers **has not changed** as a result of participation	3
Don't Know/Refused	99

NS18b. **RECORD COMMENTS, IF NECESSARY**:

_____

_____

1999 M&V-RELATED EXPERIENCE

Now I'd like to go into some more detail about your organization's experience with the Measurement and Verification requirements and results.

MV1. Please describe your experiences with the M&V process for your 1999 LNSPC projects. [Clarify which stage of milestone process issues (if any) arose, e.g., DPA M&V plan, baseline monitoring, actual first-year M&V results, etc.]

[USE IF HELPS] ___ No experience yet, hasn't started __ EESP Handling it, Don't know what is involved

_____

_____

_____

MV2. When you first decided to implement the projects included in the 1999 LNSPC, how uncertain, if at all, would you say you were about the estimated savings for these projects? Would you say:
[**CAPTURE DIFFERENCE BY MEASURE IF NEEDED]**

Extremely uncertain 1
Somewhat uncertain 2
Somewhat certain 3
Extremely certain 4
Don't Know/Refused 99

IF <u>EESP SPONSOR</u> ASK MV3, ELSE SKIP TO MV4

MV3. And did the fact that the LNSPC Program required your EESP to have a contract for measured savings with [**UTILITY**] increase your confidence in the EESP's estimates of savings?

Yes, greatly increased confidence 1
Yes, somewhat increased confidence 2
No, no affect on confidence 3
Don't Know/Refused 99

MV4. Do you plan to use your M&V results to sell further energy-efficiency improvements to management and other decision makers within your organization?

Yes 1
No 2
Don't Know/Refused 99

MV4a. Why/why not?

_____

_____

MV5 And overall, do you think the program Measurement &Verification requirements are reasonable?

Yes 1
No 2
Don't Know/Refused 99

MV5a. Please Explain:

_____

_____

_____

MV6. Do you have a rough estimate of how much the M&V for the program will cost?

Yes 1
No .....2 SKIP TO MV8
Don't Know/Refused .....99 SKIP TO MV8

MV7. On average, what <u>percent of the program incentives</u> were expended, or are expected to be expended, on M&V? And how about for handling the BPA/DPA submittals (i.e. paperwork)?

a._____% of incentives for M&V
_____ Don't Know/Refused

b. _____% for BPA/DPA submittals
_____ Don't Know/Refused

MV7b. How, if at all, does this vary by project type?

_____

_____

_____

MV8. If it wasn't a program requirement, does your organization value the M&V results for energy-efficiency projects enough to be willing to pay for them?

Yes 1
No .....2 SKIP TO DM1
Depends.....3
Don't Know/Refused .....99 SKIP TO DM1

MV8a. Explain if necessary: _____

_____

_____

MV9. (Assuming no incentives are available) Roughly how much on average, as a percent of total incremental project costs, are you generally willing to pay for measurement of savings?

_____% of total **incremental** high-efficiency project costs
_____ Don't know/Refused

ENERGY-RELATED DECISION MAKING

Now I'd like to ask some questions about how your organization generally makes energy-related decisions.

DM1a. Has your organization developed any (specification) policies for the selection of energy-efficient equipment?

Yes	1	
No	2	SKIP TO DM2
Don't Know/Refused	3	SKIP TO DM2

DM1b. And were these policies put in place BEFORE or AFTER you began participating in the 1999 LNSPC program?

Before	1
After	2
Some before and some after (or changed)	3
Don't Know/Refused	99

DM1c. And how, if at all, were these policies affected by your participation in the 1999 LNSPC program?

_____

_____

_____

DM2a. And does your organization have any internal incentive or reward policies for business units or staff responsible for managing energy costs?

Yes	1	
No	2	SKIP TO DM3
Don't Know/Refused	99	SKIP TO DM3

DM2b. And, how do these incentive/reward structures work?

_____

_____

_____

DM2c. And, were these incentive/reward structures developed or affected at all as a result of your experience in the 1999 NSPC?

Yes	1	
No	2	SKIP TO DM3
Don't Know/Refused	99	SKIP TO DM3

DM2d. If Yes, Explain?

_____

_____

DM3a. Have you made any changes in the ways in which your organization makes decisions about whether to implement energy-efficiency projects as a result of your participation in the 1999 LNSPC?

Yes	1
No	2
Don't Know/Refused	99

DM3b. Please Describe. **[RECORD VERBATIM]**

_____

_____

_____

DM4 Are there any other positive or negative affects of your participation in the 1999 LNSPC that you would like to mention that we have not asked about?

_____

_____

_____

THANK YOU FOR YOUR PARTICIPATION IN THIS STUDY.

OTHER INTERVIEWER NOTES :

(Include any comments on the net-to-gross story not covered in the structured questions):

_____

_____

_____

_____

_____

_____

_____

1999 Large Nonresidential SPC Study

1998 NSPC End-User Participant Follow-up Survey

Prepared for
SCE

Prepared by
XENERGY Inc.

Interviewer _____

1998 NSPC Utility _____

Tracking # from Utility Dbase _____

Survey Number ___ ___ ___

Completion Date/Survey Length _____

IDENTIFY NAME OF SPONSORING EESP PROVIDED IN TRACKING DATABASE

IDENTIFY UTILITY IN WHICH APPLICATIONS SUBMITTED - PG&E, SCE, OR SDG&E FROM DATABASE

*****CORRECTED INFORMATION PER INTERVIEWEE (SPONSOR NAME or MEASURES INSTALLED)*****

_____

_____

_____

END-USER PARTICIPANT INTERVIEW GUIDE – POSSIBLE LEAD IN MATERIAL

May I please speak with [CONTACT_____]? [**START WITH CONTACT NAME AND NUMBER FOR PREVIOUS 1998 INTERVIEW. IF NO LONGER WITH ORGANIZATION, ASK FOR PERSON WHO REPLACED THEM OR WOULD HAVE RESPONSIBILITY FOR ENERGY PROJECTS**. **CONFIRM THIS PERSON IS RESPONSIBLE FOR NSPC PROJECT DEVELOPMENT**.]

Hello, my name is _____ and I am calling about your participation in [UTILITY's] 1998 Nonresidential Standard Performance Contract Program. We are conducting a statewide evaluation of this Program under contract to Southern California Edison Company on behalf of the California Public Utilities Commission and with the cooperation of your local utility. The CPUC requires the utilities to conduct this research.

We understand that you were interviewed in the Fall of 1998 about your participation in the 1998 NSPC. We are conducting follow-up interviews with firms that participated in the 1998 program to discuss participant's experience with Program milestones (like the DPA, M&V, and payment process) and with its service providers. Your input to this research is extremely important. The interview will take between ***approximately 20 minutes*** and any information that is provided will remain strictly confidential. We will not identify or attribute any of your comments or company information. Is this a good time, or can we schedule a convenient time in the next couple of days to talk?

IF HESITANT: Your input to this survey is very important for ensuring the long-term success of these programs. Without input from the participants, we will have difficulty conducting a fair and complete evaluation of the program. The CA utilities strongly encourage that beneficiaries of incentives agree to participate in evaluation activities that are required by the California Public Utilities Commission.

Thank you for taking part in this survey. The major purposes of this study are to (1) obtain feedback on the design and administrative aspects of the program, and (2) understand the characteristics of participants in the program and the types of activity the program has generated. This interview is focused on experiences with the program to date.

[If they request a contact at their local utility, the following are the appropriate MAE representatives, not the program managers]

PGE	Mary O'Drain	415-973-2317
SCE	Pierre Landry	626-302-8288
SDGE	Rob Rubin	858-654-1244

[ADD TERM AND ACRONYM DEFINITIONS AS APPROPRIATE]

RESPONDENT INFORMATION

RI1. First, I'd like to confirm the following information? [CONFIRM CONTACT INFO IN DATABASE, COMPLETE ADDITIONAL INFO AS NECESSARY, OR ATTACH PRINTOUT FROM DBASE]

a. **NAME**	h. **PHONE**
b. **TITLE**	i. FAX
c. **COMPANY**	j. e-MAIL
d. STREET ADDRESS	
e. CITY	k. **INTERVIEWER**
f. ZIP	l. **CALL DATES**

RI1m. Could you please describe your role (regarding your firms participation in the NSPC Program)?

_____

WARM-UP AND RECONFIRMATION OF BASIC INFORMATION

USE RESULTS FROM 1998 COMPLETED SURVEY TO RECONFIRM A FEW FIRMOGRAPHIC CHARACTERISTICS OF THE PARTCIPATING FIRM.

PA3 I'd like to start by reviewing the status of your 1998 NSPC projects, please tell me how many applications you have in each of the following categories? **[BE PREPARED TO REMIND/EXPLAIN MILESTONES, FOCUS ON 1998 projects only]**

		Number of Applications at Each Stage					
Utility	**Canceled**	**DPA Accepted**	**Project Installation Report**	**First-Year M&V Report**	**First-Year M&V Payment**	**Second-Year M&V Report**	**Don't Know**
PG&E							
SCE							
SDG&E							
ALL							

IF ALL APPLICATIONS UNDER 1998 NSPC WERE CANCELLED, TERMINATE INTERIVIEW AFTER FINDING OUT WHY THE APPLICATION(S) WERE CANCELLED.

_____

_____

_____

ME1 Now I'd like to review the types of project(s) you are doing under the 1998 NSPC.

PROMPT BASED ON PREVIOUS INTERVIEW RESULTS

OR ASK: What types of projects are you doing for each application? [ENTER ON NEXT PAGE IF NECESSARY]

List Measures by type, Describe as Necessary. Or attach and reference sheet with measures currently tracked in program database.
1.
2.
3.
4.

PROGRAM PARTICIPANTS' EXPERIENCE WITH 3RD PARTY FIRMS

NOTE: "SPONSOR" REFERS TO OFFICIAL EESP APPLICANTS, "FIRM" REFERS TO COMPANIES HIRED BY SELF SPONSORS TO ASSIST THEM IN SOME ASPECT OF 1998 NSPC PROJECT(S)

PE1a. [**GET RESPONSE FROM PREVIOUS SURVEY AND CONFIRM**] Just to confirm, how many companies did you or are you working with as part of your 1998 NSPC application?

Currently working with 1 or more firms 1
Plan to work with 1 or more firms.....2
Plan to do entire project alone 3
Don't Know/Refused 99

PE1b And the primary firm you worked with for the 1998 NSPC was **EESP SPONSOR/FIRM**?.

[**REENTER SPONSOR OR FIRM NAME. IF DIFFERENT FROM PREVIOUS SURVEY STATE WHY DIFFERENT]**

_____

_____

PE1d. And previously you said you were using **your in-house staff /an outside firm** to implement the M&V requirements? [**ENTER CURRENT ANSWER BELOW, check box if changed from previous]**

1. In-house
2. Outside firm, ➔ PE3b **Request/CONFIRM name if different from EESP SPONSOR**:
   _____

❑ Changed from Previous

IF CUSTOMER DOING ALL WORK THEMSELVES (I.E. IF PE2a=3 and PE3a=1) THEN SKIP TO NS11 ON PAGE 9

PE3. And how important a role did/has this firm(s) played in the implementation of your 1998 NSPC project(s)? Would you say:

Extremely important.....1
Somewhat important.....2
Somewhat unimportant.....3
Extremely unimportant.....4 SKIP TO NS11, p9
Don't Know/Refused.....99

NS2a. What were the reasons that you selected the firm you are using to perform your 1998 NSPC-related project work? [**DO NOT READ LIST, ACCEPT MULTIPLES**]

Needed urgent/immediate replacement 1
Timeliness of response (not urgent/immediate) 2
Lower price/up-front cost 3
Lower maintenance cost 4
Ability to get rebate/incentive 5
Worked with contractor before/prior experience 6
Contractor seemed easier to do business with 7
Contractor reputation/referral 8
Equipment reputation/recommendation 9
Higher efficiency level 10
Better non-energy (comfort, quality) performance 11
Equipment availability/lead time 12
Already under contract with them for EE or other services 13
Other [SPECIFY:] _____ 88
DK/NA 99

NS2b. And which was most important? [**RECORD ONLY ONE VERBATIM**]

Needed urgent/immediate replacement 1
Timeliness of response (not urgent/immediate) 2
Lower price/up-front cost 3
Lower maintenance cost 4
Ability to get rebate/incentive 5
Worked with contractor before/prior experience 6
Contractor seemed easier to do business with 7
Contractor reputation/referral 8
Equipment reputation/recommendation 9
Higher efficiency level 10
Better non-energy (comfort, quality) performance 11
Equipment availability/lead time 12
Already under contract with them for EE or other services 13
Other [SPECIFY:] _____ 88
DK/NA 99

NS4a According to our records, you previously described your contract with **SPONSOR/FIRMNAME** as a **CONTRACT TYPE** [**ENTER TYPE FROM PREVIOUS INTERVIEW RESULTS**]**?** Is this still accurate**?**

[**MARK CORRECT CONTRACT TYPE BELOW, REGARDLESS OF PREVIOUS SURVEY RESPONSE**]

Energy performance contract.....1
Shared savings (cust has some risk) 2
Guaranteed savings (EESP has all risk) 3
Fee-for-service/equipment contract 4
Combination: performance contract & fee-for service 5
EESP paid from incentives: fixed fee or 1st payment only 6
EESP paid from incentives: tied to savings or % of all 3 payments 7
Part of larger contract.....8
Other 9
NS4a1 (please describe)_____
Don't Know/Refused .....99 SKIP TO NS7

NS4b. And could you please describe the basic structure of the contract? [**PROBE: IF PERF. CONT. OR OTHER, GUARANTEED VS. SHARED SAVINGS, IS EESP PAID UPFRONT OR FROM SAVINGS OVER TIME, ARE SAVINGS STIPULATED OR BASED ON M&V**]

_____

_____

_____

[IF CONTRACT TYPE HAS PERFORMANCE ELEMENT (NS4a=1-3,5,7)ASK NS4C, ELSE SKIP TO NS7]

NS4c. And why did you choose a performance contract for this project(s)? [**DON'T READ LIST. ACCEPT MULTIPLES**]

Uncertainty over estimates of savings.....1
Didn't trust EESP.....2
EESP only offered to do work under performance contract.....3
Lack of access to capital, needed EESP to finance.....4
Wanted to share risk with third-party.....5
Able to use energy-efficiency savings to make equipment/facility upgrades that wouldn't be possible otherwise.....6
Other SPECIFY BELOW 7

NS4d. **DESCRIBE VERBATIM AS NECESSARY**:

_____

_____

_____

NS7a. And based on your experience with **SPONSOR/FIRM** to date, how satisfied would you say that you are with the overall value and quality of services received, would you say you are [**READ LIST**]?

Extremely satisfied 1
Somewhat Satisfied 2
Somewhat Dissatisfied 3
Extremely dissatisfied 4
Don't Know/Refused 99

NS7b. Why do you say that? [**RECORD VERBATIM**]

_____

_____

_____

NS8a. And would you recommend **SPONSOR/FIRM** to other customers either inside or outside your organization or provide a positive reference for **SPONSOR/FIRM**? Or have you already?

Yes, would 1
Yes, have already 2
No 3
Don't Know/Refused 99

NS8b. And why is that? [ASK AS NEEDED, RECORD VERBATIM]

_____

_____

_____

NS9a. And do you plan to use **SPONSOR/FIRM** in the future for other energy-efficiency related services for your organization? Would you say you:

Definitely will use again or have already 1
Probably will use again 2
Probably won't use again 3
Definitely won't use again 4
Don't Know/Refused 99

NS9b. And why is that? **[ASK AS NEEDED, CONFIRM IF NO MEASURES LEFT TO DO]**

_____

_____

_____

[IF CONTRACT TYPE HAS PERFORMANCE ELEMENT ASK NS10, ELSE SKIP TO NS11]

NS10a. And how about your experience with the performance contracting aspects of your 1998 NSPC project(s), how satisfied would you say that you are with your performance contract, would you say you are [**READ LIST**]?

Extremely satisfied 1
Somewhat satisfied 2
Somewhat dissatisfied 3
Extremely dissatisfied 4
Don't Know/Refused 99

NS10b. Why do you say that? [**RECORD VERBATIM**]

_____

_____

_____

[SELF-SPONSORS PICK UP AGAIN HERE FROM PAGE 5]

NS11a. And how satisfied would you say you are with the performance of the energy-efficiency measures you implemented as part of the 1998 NSPC(s) [**READ LIST**]? Would you say:

Extremely satisfied 1
Somewhat Satisfied 2
Somewhat Dissatisfied 3
Extremely dissatisfied 4
Don't Know/Refused 99

NS11b. Why do you say that? [**RECORD VERBATIM, CAPTURE DIFFERENCE BY MEASURE IF NEEDED**]

_____

_____

_____

NS12a. Have you, or do you plan to, share the results of your experience with your NSPC project(s) inside your organization, either in terms of your experience with the efficiency measures you implemented or with respect to your experience with the firms with whom you worked?

Yes	1	
No	2	ASK NS13
Don't Know/Refused	99	ASK NS13

NS12b. **PROBE TO GET SOME SPECIFICS ON TO WHOM AND HOW AND WHAT THEY PLAN TO COMMUNICATE, AND THROUGH WHAT MEANS**

_____

_____

_____

NS13a. Do you plan to share the results of your experience with your 1998 NSPC project(s) outside your organization, either in terms of your experience with the efficiency measures you implemented or your experience with the firms with whom you worked? Or have you already?

Yes plan to share	1	
Yes, have already	2	
No	3	ASK NS14
Don't Know/Refused	99	ASK NS14

NS13b. **PROBE TO GET SOME SPECIFICS ON TO WHOM AND HOW AND WHAT THEY PLAN TO COMMUNICATE, AND THROUGH WHAT MEANS**

_____

_____

_____

NS14a. As a result of your participation in the program, did you or do you plan to implement any additional energy efficiency measures elsewhere at this facility or at other facilities of your organization?

Yes, most of measures	1	
Yes, some of measures	2	
No, none of measures	3	SKIP TO NS18
Don't Know/Refused	99	SKIP TO NS18

NS14b. **PROBE**: Please describe which measures and why?

_____

_____

_____

NS15a. And how significant was your 1998 NSPC program experience in your decision to expand use of these measures? [**CLARIFY PROGRAM EXPERIENCE REFERS TO ALL FEATURES INCLUDING INCENTIVES, M&V, EXPERIENCE WITH ESCOs THAT WOULD NOT HAVE OCCURRED OTHERWISE, ETC**.]

Extremely significant	1
Somewhat significant	2
Somewhat insignificant	3
Extremely insignificant	4
Don't Know/Refused	99

NS15b. **PROBE**: In what way?

_____

_____

_____

NS16. Will this implementation be done inside or outside of California?

Inside CA	1	
Outside CA	2	SKIP TO NS18
Both	3	
Don't Know/Refused	99	SKIP TO NS18

NS17. For the work in California, do you plan to implement these measures whether or not the incentives are available?

Yes, most or all of measures	1
Yes, some of measures	2
No, none of measures	3
Don't Know/Refused	99

****SELF SPONSORS DOING <u>ALL WORK THEMSELVES</u> SKIP TO PO ****

NS18a. How, if at all, has your experience in the 1998 NSPC program affected your general opinion about the credibility and trustworthiness of energy service companies and other energy service providers? [**CLARIFY: NOT OF SPECIFIC PROVIDER BUT OF PROVIDER TYPE, E.G., THE ESCO INDUSTRY, CONTRACTOR INDUSTRY, ESP INDUSTRY ETC.**]

Opinion of service providers is **better** as a result of participation	1
Opinion of service providers is **worse** as a result of participation	2
Opinion of service providers **has not changed** as a result of participation	3
Don't Know/Refused	99

NS18b. **RECORD COMMENTS, IF NECESSARY**:

_____

_____

_____

1998 NSPC PROCESS-RELATED EXPERIENCE

Now I have a couple of questions on your experience with the program implementation process.

P.O. Since we last spoke with you you've had an opportunity to work through more of the 1998 Milestones. Based on these experiences, have your opinions about the strengths and weaknesses of the program and administrative requirements changed since we last spoke? If so, please explain. **[PROBE: FOCUS ON EXPERIENCES FROM LATE 1998 TO PRESENT]**

_____

_____

_____

P.3 Have the 1998 NSPC payment procedures and timing been reasonable?

Yes 1
No 2
Don't Know/Refused 99

P3a. Please Explain:

_____

_____

_____

P4a. Would you say that the overall program experience with **[UTILTY]** was … [**READ LIST**]?

Excellent 1
Good 2
Acceptable, about what expected 3
Somewhat poor 4
Very Poor 5
[DO NOT READ:] DK/NA.....9

P4b. Why do you say that? [**RECORD VERBATIM**]

_____

_____

_____

1998 M&V-RELATED EXPERIENCE

Now I'd like to go into some more detail about your organization's experience with the Measurement and Verification requirements and results.

MV1. Please describe your experiences with the M&V process for your 1998 LNSPC projects. [Clarify which stage of milestone process issues (if any) arose, e.g., DPA M&V plan, baseline monitoring, actual first-year M&V results, etc.]

[USE IF HELPS] ___ No experience yet, hasn't started __ EESP Handling it, Don't know what is involved

_____

_____

_____

MV2. When you first decided to implement the projects included in the 1999 LNSPC, how uncertain, if at all, would you say you were about the estimated savings for these projects? Would you say:
[**CAPTURE DIFFERENCE BY MEASURE IF NEEDED]**

Extremely uncertain 1
Somewhat uncertain 2
Somewhat certain 3
Extremely certain 4
Don't Know/Refused 99

IF <u>EESP SPONSOR</u> ASK MV3, ELSE SKIP TO MV4

MV3. And did the fact that the LNSPC Program required your EESP to have a contract for measured savings with [**UTILITY**] increase your confidence in the EESP's estimates of savings?

Yes, greatly increased confidence 1
Yes, somewhat increased confidence 2
No, no affect on confidence 3
Don't Know/Refused 99

MV4. Do you plan to use your M&V results to sell further energy-efficiency improvements to management and other decision makers within your organization? Or have you already?

Yes or have already 1
No 2
Don't Know/Refused 99

MV4a. Why/why not?

_____

_____

_____

MV5 And overall, do you think the program Measurement &Verification requirements were reasonable?

Yes 1
No 2
Don't Know/Refused 99

MV5a. Please Explain:

_____

_____

_____

MV6. Do you have a rough estimate of how much the M&V for the program will cost?

Yes 1
No .....2 SKIP TO MV8
Don't Know/Refused .....99 SKIP TO MV8

MV7. On average, what <u>percent of the program incentives</u> were expended, or are expected to be expended, on M&V? And how about for handling the BPA/DPA submittals (i.e. paperwork)?

a._____% of incentives for M&V b. _____% for BPA/DPA submittals
_____ Don't Know/Refused _____ Don't Know/Refused

MV7b. How, if at all, does this vary by project type?

_____

_____

_____

MV8. If it wasn't a program requirement, does your organization value the M&V results for energy-efficiency projects enough to be willing to pay for them?

Yes 1
No .....2 SKIP TO MV10
Depends.....3
Don't Know/Refused .....99 SKIP TO MV10

MV8a. Explain if necessary:

_____

_____

_____

MV9. (Assuming no incentives are available) Roughly how much on average, as a percent of total incremental project costs, are you generally willing to pay for measurement of savings?

_____% of total **incremental** high-efficiency project costs
_____ Don't know/Refused

MV10. [**Double-check as needed**] Has your 1998 NSPC Project(s) reached the first-year M&V reporting milestone?

Yes	1	
No	2	SKIP TO DM1
Don't Know/Refused	99	SKIP TO DM1

MV11a. And has your organization seen and reviewed these M&V results?

Yes	1
No	2
Don't Know/Refused	98

MV11b. Why/why not?

_____

_____

_____

IF SELF-SPONSOR SKIP TO NEXT INSTRUCTION
IF EESP-SPONSOR ASK MV12a;

MV12a. Do you expect your EESP to present you with the First-Year M&V results?

Yes	1
No	2
Don't Know/Refused	99

MV12b. Why/why not?

_____

_____

_____

IF (HAVE REVIEWED M&V RESULTS) ASK MV13, ELSE SKIP TO DM1

MV13a. Have your overall M&V results shown savings to be greater than, less than, or about the same as what was originally estimated?

Greater than	1
Less than	2
About the same	3
Don't Know/Refused	99

MV13b. **NOTE ANY DIFFERENCES BY PROJECT/MEASURE/END USE**:

_____

_____

MV13c. And what were your reactions to your first-year M&V results?

_____

_____

_____

MV13d. Have your M&V results affected your opinions about your EESP?

Yes, positively 1
Yes, negatively.....2
No, no effect.....3
Don't Know/Refused 99

MV13e. And why is that?

_____

_____

_____

MV14a. (And now that you have your first-year results,) are you any more or less likely to pursue the types of efficiency measures you implemented in the 1998 NSPC as a result of these M&V results?

More likely 1
Less likely.....2
About the same as prior to receiving M&V results.....3
Don't Know/Refused 99

MV14b. And why is that?

_____

_____

_____

MV15a. And overall, how useful would you say the program Measurement & Verification results are?

Extremely useful 1
Somewhat useful.....2
Not at all useful 3
Don't Know/Refused 99

M15b. Please Explain:

_____

_____

_____

ENERGY-RELATED DECISION MAKING

DM1a. Has your organization developed any (specification) policies for the selection of energy-efficient equipment?

Yes	1	
No	2	SKIP TO DM2
Don't Know/Refused	3	SKIP TO DM2

DM1b. And were these policies put in place BEFORE or AFTER you began participating in the 1998 NSPC program?

Before	1
After	2
Some before and some after	3
Don't Know/Refused	99

DM1c. And how, if at all, were these policies affected by your participation in the 1998 NSPC program?

_____

_____

_____

DM2a. Does your company have any internal incentive or reward policies for business units or staff responsible for managing energy costs?

Yes	1	
No	2	SKIP TO DM3
Don't Know/Refused	99	SKIP TO DM3

DM2b. And, how do these incentive/reward structures work?

_____

_____

_____

DM2c. And, were these incentive/reward structures developed or affected at all as a result of your experience in the 1998 NSPC?

Yes	1	
No	2	SKIP TO DM3
Don't Know/Refused	99	SKIP TO DM3

DM2d. [If Yes] Explain?

_____

_____

DM3a. Have you made any other changes in the ways in which your organization makes decisions about whether to implement energy-efficiency projects as a result of your participation in the 1998 NSPC?

Yes 1
No 2
Don't Know/Refused 99

DM3b. Please Describe **[Record Verbatim]**

_____

_____

_____

DM4. Are there any other positive or negative affects of your participation in the 1998 NSPC that you would like to mention that we have not asked about?

_____

_____

_____

THANK YOU FOR YOUR PARTICIPATION IN THIS STUDY.

OTHER INTERVIEWER NOTES :

_____

_____

_____

_____

_____

_____

_____

_____

1999/1998 LNSPC Participant EESP
Interview Guide

NAME	PHONE
TITLE	FAX
COMPANY	E-MAIL
STREET ADDRESS	
CITY	INTERVIEWER
STATE	CALL DATES
ZIP	COMPLETE DATE
D&B SALES	D&B EMPLOYEES

Hello, my name is _____ and I am calling on behalf of the California Public Utilities Commission as part of a study of the market for energy efficiency services in California. May I please speak with _____?

As I mentioned, we are conducting a study on behalf of the California Public Utilities Commission. As a part of this study, we are contacting a number of energy service companies in order to discuss a series of topics related to California's Large Non-Residential Standard Performance Contract (LNSPC) program and the broader market for energy efficiency services. Your input to this research would be very valuable and, if possible, we are interested in interviewing you on this topic. The interview will take approximately half an hour, and any information that is provided during the interview will remain strictly confidential. We will not identify or attribute any of your comments or company information. Is this a good time, or can we schedule a convenient time in the next couple of days to talk?

[IF HESITANT:] Your input to this survey is very important for ensuring the long-term success of these programs. Without input from industry representatives such as you, we cannot guarantee that the program will receive a fair and complete evaluation.

[IF SCHEDULED:] Callback date/time:

Thank you for taking part in this survey. The major purposes of this study are to (1) provide feedback to the utilities and CPUC on the design and administrative aspects of the program, (2) develop a characterization of the market for energy efficiency services, and (3) assess changes that are occurring in the marketplace. This interview is focused on experiences with the program to date and the current market for energy-efficiency services. We would also like to talk with you in a few months to gain additional feedback on your experiences with the DPAs, Measurement and Verification, and other aspects of the program that you may not have experienced yet.

I. BACKGROUND INFORMATION

A. For background purposes, let me confirm that your firm:

1. Participated in the program in 1999 only (did not participate in 1998). (Type 1 participant - continue)

2. Participated in the program in 1999, and also participated in 1998. (Type 2 participant - continue)

3. Participated in the program in 1998 only (no new projects in 1999). (Type 3 participant - skip to _____)

B. For background purposes, I would like to first summarize the ways in which your firm has participated in the CBEE Non-residential SPC (NRSPC) program (Note: Do not include projects submitted in 2000):

Has your firm:

1. # projects with your firm as sponsor?
   PY98:
   PY99:

2. # projects bids with a customer as the sponsor?
   PY98:
   PY99:

C. Excluding projects already submitted in PY2000, approximately how many proposals for LNRSPC projects does your firm currently have under development with customers?

_____

D. Let's review the status of your 1998 (and, if applicable, 1999) applications, how many are in each of the following categories?

1998 NSPC

	Number of Applications				
Utility	**DPA Accepted**	**Project Installation Report**	**First-Year M&V Report**	**First-Year M&V Payment**	**Second-Year M&V Report**
PG&E					
SCE					
SDG&E					
ALL					

1999 LNSPC

	Number of Applications					
Utility	**BPA Submitted**	**BPA Accepted**	**DPA Submitted**	**DPA Accepted**	**Project Installed**	**First-Year M&V Report**
PG&E						
SCE						
SDG&E						
ALL						

E. In which of the following service areas did you market and/or develop proposals for the NRSPC in 1999?

1. PG&E
2. SCE
3. SDG&E
4. N/A

F. Do you market more intensively or otherwise focus on one region of the state more than others?

0. No
1. Yes

Probe: Why have you focused on this/these regions? _____

_____

_____

G. What primary types of measures have you proposed installing in your LNSPC projects ?

_____

_____

H. And do you plan to, or have you, participated in the PY2000 LNSPC?

1. Participated already
2. Plan to participate
3. Don't plan to participate. Why not:

[TYPE 1 PARTICIPANTS CONTINUE]

[TYPE 2 AND 3 PARTICIPANTS, SKIP TO SECTION III FINANCIAL INFORMATION]

I. Which of the following best describes the primary business area(s) of your firm?

[IMPORTANT: NOTE ANY UNIQUE "SELF-CLASSIFICATION" TERMS.]

1. "Traditional" ESCO *(predominantly performance-based contracts)*
2. Retail Energy Service Company (RESCO) *(selling both commodity and efficiency services)*
3. Architecture / Engineering / Equipment Specifier
4. Building Maintenance and Operations
5. Other *(please describe)*

J. Referring to the following table, in which of the following activities is your company engaged (at least one project)? For the services which you provide, which would you consider to be the most important to the overall financial performance of your company (take top 3 in order)?

Services		**Type of Service**	**Service currently provided? (0=No, 1=Yes)**	**Top Priorities (1-3)**
Nonresidential Energy Efficiency	1	Performance contracting*		
	2	Walk-through audits		
	3	"Total energy management"**		
	4	Investment-grade audits		
	5	Fee-for-service installations		
	6	Project Financing		
	7	Other (describe)		
Energy Commodity	8	Electric Commodity		
	9	Gas Commodity		
Other	10	Billing Services		
	11	Metering services		
	12	Power quality		
	13	O&M (HVAC, Ltg., process)		
	14	Other __(LIST)		

* *For the purposes of this survey, we are defining performance contracting as a retrofit or new construction project in which energy savings are measured and verified (based upon assumptions regarding the level of operation and the cost of energy being saved) and the company performing the work is paid only from total dollar savings actually produced by the project.*

** *Refers to projects in which the energy service company takes over ownership/control of end-use equipment and sells the customer end-use services.*

Describe any information offered on why these are most important: _____

_____

_____

_____

II. FIRMOGRAPHICS

[TYPE 1 PARTICIPANTS ONLY]

A. In what year was your company founded? _____

B. Which of the following best describes the geographic focus of your operations?

1. Local
2. Regional
3. Statewide (California)
4. National
5. International

C. Do you have a California office?

0. No
1. Yes _____ (year founded)

D. How many years has your company been providing energy efficiency services in California?

_____

E. Is this company:

1. Privately held
2. A public company
3. Subsidiary of a public company? (Company Name: _____)

[NOTE: IF A PUBLIC COMPANY, REQUEST COPY OF ANNUAL AND 10K REPORTS]

F. Approximately how many full-time equivalent employees (FTEs) do you employ, including all in-house contractors?

1. ___ # FTEs in California?

2. ___ # FTEs nationally?

G. Which of the following services do you provide in-house, and approximately what percentage of your employees has primary responsibilities in these areas:

	Functional area	**In-house / External? (0=External, 1= In-house, 2= Combination)**
1	Sales/marketing	
2	Engineering design and equipment specification	
3	Project financing	
4	Installation labor	
5	Construction management	
6	Measurement & verification	
7	Other (please specify)	

III. FINANCIAL INFORMATION

[FOR ALL PARTICIPANT TYPES]

A. Excluding commodity-based sales, approximately what were your company's annual revenues from California-based energy efficiency services during the 1999 calendar year?

0. Zero
1. Declined
2. $ _____
3. Not applicable

B. Relative to your company's revenue from CA energy-efficiency services in 1998, did this level of activity represent an increase or decrease, and by approximately what percent?

1. ___% Increase
2. ___% Decrease
3. About the same

C. Has your firm been involved in any recent merger and acquisition activity?

0. No
1. Yes

IV. NSPC PROCESS-RELATED INFORMATION

A. ***[TYPE 3 ONLY]*** What is the primary reason why your firm did not participate in the PY99 LNRSPC program? Please describe.

_____
_____
_____

B. ***[TYPE 1]*** Since we last spoke with you you've had an opportunity to work through more of the 1998 Milestones ***[IF 1999 PARTICIPANT:*** and participate in the 1999 LNSPC***]***. Based on these experiences have your opinions about the strengths and weaknesses of the program and administrative requirements changed since we last spoke? _____

_____
_____

C. ***[FOR TYPE 2]*** Are there any aspects of the 1999 program that you think were better or worse than the 1998 program? _____

_____
_____

[FOR TYPE 1 PARTICIPANTS AND TYPE 2 PARTICIPANTS NOT PREVIOUSLY SURVEYED]

D. Based upon your experiences in 1999 program year, what do you view as the primary strengths of the LNSPC program? _____

_____
_____

E. Based upon your experiences in 1999 program year, what do you view as the primary weaknesses of the SPC program? _____

_____
_____

[FOR ALL PARTICIPANTS]

F. Please describe your experiences with the M&V process for your NSPC projects. [Clarify which stage of milestone process issues arose] _____

_____
_____

G. On average (for either 1998 or 1999 projects), what percent of the program incentives were expended or are expected to be expended on M&V? And how about for handling the BPA/DPA submittals (i.e. paperwork)? _____

_____% of incentives for M&V _____% for BPA/DPA submittals

H. How, if at all, does this vary by project type? _____
_____

I. Please describe your experiences with the payment process for your 1998 NSPC projects. Are payment procedures and timing reasonable? Please explain. _____
_____
_____

J. Have the utility(ies) or their contractors been helpful during the various aspects of the NSPC program process?

0. No
1. Yes
Please Explain: _____
_____

V. NSPC-RELATED MARKET AND PROGRAM EFFECTS

[FOR ALL PARTICIPANT TYPES]

A. Has your firm added any new target markets, or developed any new service offerings during the past year?

0. No
1. Yes
If Yes, please describe: _____
_____

If Yes, is any of this change attributable to your participation in the CA nonresidential SPC program(s)?

0. No
1. Yes
If Yes, please describe: _____
_____

B. How many staff do you expect to be adding or reducing in the next 6 -12 months?

____ # expected to be added _____ # expected to be reduced

C. Is any of this change attributable to your participation in the CA nonresidential SPC program(s)?

0. No
1. Yes

If Yes, please describe: _____

_____

D. What effect, if any, has your participation in the NSPC had on your business?

_____

_____

E. Was any of this change attributable to your participation in the CA nonresidential SPC program(s)?

0. No
1. Yes

If Yes, please describe: _____

_____

[PROBES]

F. How, if at all, has the Nonresidential SPC program affected your company's energy-efficiency related business development and strategic or tactical planning?

_____

_____

_____

G. Has the NRSPC led to any specific changes to your company's energy-efficiency related marketing, advertising, branding, target marketing or other customer acquisition activities?

_____

_____

_____

H. What are the primary selling points (value propositions) that you use, and how have these changed, if at all, with LNSPC? _____

_____

_____

I. ***[SKIP IF ADEQUATELY COVERED]*** How has the Nonresidential SPC program affected, if at all, the specific types of products and services your firm offers?

_____

_____

J. At an overall level (not just your company), what impacts, if any, do you see 1998 and 1999 NSPC programs having in the marketplace? (probe near-term vs. longer-term)

_____

_____

K. What are the primary selling points (value propositions) that you use, and how have these changed, if at all, because of the NSPC? _____

_____

_____

L. Do you have any examples of particularly innovative, emerging, or comprehensive projects that LNSPC program made possible? (Try to get customer name)

_____

_____

[GET ANY POSITIVE, ILLUSTRATIVE CASE STUDIES OF LNSPC PROJECTS THEY BELIEVE WERE INNOVATIVE OR COMPREHENSIVE (AND HOW LNSPC SUPPORTED THIS) OR THAT WOULD SIMPLY BE GOOD GRIST FOR DIFFUSING TO A WIDER AUDIENCE OF END USERS THAN THE PARTICIPATING CUSTOMER.]

M. How, if at all, are LNSPC induced project successes being incorporated into your marketing and sales process? _____

_____

VI. CONTRACTING, SALES, AND M&V SPECIFICS

[NEXT FEW QS FOR TYPE1 AND 2 PARTICIPANTS ONLY]:

A. In what percent of your sales efforts with large CA customers that are energy-efficiency related, do you strongly encourage participation in the LNSPC? _____

B. ***[IF <100%]*** What criteria do you use to decide whether to promote the LNSPC?

_____

C. To what extent, if any, do you emphasize utility sponsorship of the LNSPC program when selling LNSPC projects to prospective customers? Would you say that you:

1. Strongly emphasize utility sponsorship
2. Somewhat emphasize utility sponsorship
3. Don't emphasize at all utility sponsorship

D. Of your LNSPC projects in 1999, what percent of these projects do you think you would have been able to sell anyway without the LNSPC program? _____

And why is that? _____
_____

E. In what percent of cases in which you presented a customer with an 1999 LNSPC-related bid, was contact with the customer initiated by:

	Contact Initiation Method	% Bids
1	Proactive proposal to an existing or referred customer	
2	Proactive proposal to an entirely new customer (i.e., cold call, w/ no previous business history)	
3	Other (please describe)	

[NEXT Q ALL PARTICIPANTS]

F. Has the NSPC work you have done to date on CA NSPC projects (either 1998 or 1999 program) led to any follow-on work with either those same participating customers, or with customers that were directly referred to you by your NSPC customers?

0. No
1. Yes

Follow-on work with same customers [TRY TO GET NUMBER OR CASES]:
_____

Follow-on work with new (second-generation) customers referred by original NSPC customers {TRY TO GET NUMBER OF CASES]: _____
_____

[REMINDER NOTE TO US TO CLARIFY/FINALIZE CONTRACT DEFINITIONS BEFORE STARTING INTERVIEWS]

[NEXT FEW QS FOR TYPE1 AND 2 PARTICIPANTS ONLY]

G. Please provide a rough percentage breakdown of the types of contracts you structured with customers/host facilities under the 1999 LNSPC.

1. ___ % Performance-based-Shared Savings
2. ___ % Performance-based-Guaranteed Savings
3. ___ % Fee-for-service based
4. ___ % Other (please describe)

100%

H. And what is the rough breakdown of energy-efficiency related contract types for your firm's projects generally? That is, for projects outside of the CA NSPC program?

1. ___ % Performance-based-Shared Savings
2. ___ % Performance-based-Guaranteed Savings
3. ___ % Fee-for-service based
4. ___ % Other (please describe)

100%

I. ***[FOR ALL PARTICIPANTS]*** And, in general, how do you use the NSPC incentives in your business? _____

_____

J. ***[FOR TYPE 1 AND TYPE 2 ONLY]*** For NRSPC projects in which you are a sponsor, what proportion, if any, of program incentives did you pass through to the customer to reduce incremental measure costs as opposed to applying them to offset your own marketing, project development, and M&V costs?

1. ___% passed-through to customers
2. ___% used to off-set other operating costs

K. ***[FOR ALL PARTICIPANTS]*** For how many of your 1998 and 1999 NSPC projects do you have first year M&V results?

1998 _____
1999 _____

L. ***[FOR ALL PARTICIPANTS, AS APPLICABLE]*** Have you presented your NSPC customers with their first-year M&V results?

0. No
1. Yes

Why/why not? _____

_____

M. What reactions have you had from your NSPC customers regarding the M&V results and the M&V requirements?

1. Reactions to M&V results: _____

_____

2. Reactions to M&V requirements: _____

_____

N. Are your customers generally willing to pay for M&V results? If so, roughly how much on average, or in cents per first-year kWh saved, or as a percent of total project costs, are they typically willing to pay for measured savings? _____

O. Have the M&V requirements and results helped the credibility of your firm with your participating customers?

0. No
1. Yes

Why/why not? _____
_____

P. How do program M&V requirements differ from your firm's standard practice for energy-efficiency related projects? _____
_____

Q. Have you adopted any of the program requirements as standard practice?

0. No
1. Yes

Why/why not? _____
_____

VII. MARKET CHALLENGES AND TRENDS

A. Relative to a year ago, has there been any change in customer interest in energy efficiency services?

0. No
1. Yes

And why do you say that? _____
_____

VIII. CLOSERS

A. And do you have any suggestions, more generally, on how best to increase long-term demand for high-efficiency products and services through temporary program interventions (either new programs or how existing programs could be modified, redesigned)?

_____

_____

VERSION 8:FINAL JUNE 20, 2000

Telephone Survey
1999 LNSPC Study

Baseline End-Users, CA and Non-CA

Prepared for SCE

Prepared by
XENERGY Inc.

Interviewer ID ___ ___ ___

Survey Number ___ ___ ___ ___

CREATE VARIABLE STYPE, IF SAMPLE TYPE=CALIFORNIA, STYPE=1, ELSE STYPE=2

CREATE VARIABLE UTILITY FOR STYPE=1

FOR IN-STATE SET VARIABLE UTILITY TO: PACIFIC GAS AND ELECTRIC COMPANY, SOUTHERN CALIFORNIA EDISON COMPANY, AND SAN DIEGO GAS AND ELECTRIC COMPANY, AS APPROPRIATE

REMINDER: **CHECK CA SAMPLE PULL AGAINST LIST OF LNSPC PROGRAM PARTICIPANTS, EXCLUDE PROGRAM PARTICIPANTS FROM SAMPLE**

INTRODUCTION

SCREEN1

[WHEN RECEPTIONIST ANSWERS]:

[LARGE COMPANY]: May I have Engineering, please?

[SMALL COMPANY]: May I speak with the Facilities Manager, please?

[OTHER DEPARTMENTS TO ASK FOR]:

Maintenance	General Services
Operations (Manager)	Public Relations
Plant Services	Purchasing
Building Manager	Planning Department

LEAD IN

INTRO1

Hello, this is _____, calling from Quantum Consulting on behalf of the California Public Utilities Commission. We are conducting a study on issues related to energy services in California. May I speak with the person in your organization who is most responsible for energy-related decisions for your facilities?

[NOTE: YOU SHOULD BE LOOKING FOR THE PERSON RESPONSIBLE FOR EQUIPMENT PURCHASES, ENERGY EFFICIENCY AND ENERGY SUPPLY]

Yes 1
Respondent not available now 2
Respondent coming to phone 3
No such person 4
Refused 5

IF INTRO1 = 1 GO TO INTRO2_2, IF INTRO1 = 2 GO TO CALL BACK SCREEN
IF INTRO1 = 3 GO TO INTRO2_1, ELSE ASK INTRO1A

INTRO1A

[IF NO SUCH PERSON]: May I speak with the person in your organization who is responsible for decisions regarding construction, renovation, or operation of your physical facilities?

INTRO1B NAME OF CONTACT: _____

INTRO1C TITLE: _____

IF RESPONDENT IS NOT AVAILABLE, GET HIS/HER NAME AND TITLE; MAKE ARRANGEMENTS TO CALL LATER

INTRO2_1

WHEN RESPONDENT GETS ON THE LINE: Hello, this is _____, calling Quantum Consulting calling on behalf of the California Public Utilities Commission. We are conducting a study on issues related to energy services in California.

(**INTRO 2_2** – does not have "Hello, this is…" again.)

Are you familiar with your organization's recent energy-related decisions such as those concerning equipment purchases, energy efficiency and energy supply?

YES: PROCEED TO FINAL LEAD IN PARAGRAPH (INTRO3).

NO: INTRO2A

INTRO2A

Who would be the best person in your organization to speak with about energy-related decisions?

_____ ASK TO BE CONNECTED WITH THIS INDIVIDUAL.

INTRO2B

May I please speak with ___(insert from Intro2A)_____

(IF CONTACT COMES TO PHONE, ASK INTRO2_1)

(IF CONTACT NOT AVAILABLE, SCHEDULE CALLBACK)

INTRO3

We are speaking with selected businesses and organizations to learn about their current energy practices and preferences. A group of energy policy makers will use information from this study to improve energy policies and programs for nonresidential customers. This interview should take about 10 minutes. Is this a good time for you or is there a better time I can call you back?

Yes……..1

No, schedule callback……..2

No, refused……..3

(IF YES, GO TO SC1)

SC1. First, what is your job title? [DON'T READ]

Facilities Manager 1
Energy Manager 2
Other facilities management/maintenance position 3
Chief Financial Officer 4
Other financial/administrative position 5
Proprietor/Owner 6
President/CEO 7
Other (Specify) ____(SC1_OTH)__ 8
Refused 99

IF CA SAMPLE (STYPE=1) ASK SC2a, IF NON-CA SAMPLE (STYPE=2) ASK SC2b

SC2a. Next, I want to confirm that this facility receives electric distribution service from [UTILITY]. Is this correct?

Yes 1
No 2
Don't know 98
Refused 99

IF SC2a = 2 ASK SC2b, ELSE IF SC2a = 1 SKIP TO EC1a, ELSE CONFIRM INTERVIEWEE IS APPROPRIATE PERSON

SC2b. What is the name of the local electric distribution company that delivers electricity to this facility? [RECORD VERBATIM]

MAP RESPONSE TO VARIABLE CALLED "UTILITY"

ESTABLISHMENT CHARACTERISTICS

And now, just a few quick questions about this facility.

EC1. What kind of facility is at [ADDRESS OF FACILITY IN SAMPLE DATABASE]? [DO NOT READ. IF NECESSARY, PROBE CLOSEST CATEGORIES]

- Primary or Secondary School 1
- College or other post-secondary school 2
- Office 3
- Hospital 4
- Non-Food Retail 5
- Restaurant 6
- Government 7
- Grocery/Food Sales/Service 8
- Lodging 9
- Warehouse 10
- Religious 11
- Industrial Manufacturing 12
- Industrial Assembly 13
- Other (SPECIFY IN **EC1_OPN**) 14
- Don't know 98
- Refused 99

EC2. Approximately how many square feet does **your organization occupy in this facility?**

1. (EC2_1) Enter sq. ft. (Range = 10 – 10,000,000)
2. Not applicable - (E.g., agricultural, certain industrial)

98. DON'T KNOW

99. REFUSED

EC3. Does your organization.....

- Own this space 1
- Lease this space 2
- Own a portion and lease the remainder 3
- Don't Know 98
- Refused 99

IF EC3 = 2 OR 3, GO TO EC4. ELSE, SKIP TO EC5.

EC4. Does your organization pay its own electric bill directly to [UTILITY] or is electricity provided under your lease arrangement?

Pay own electric bill.....1
Part of the lease arrangement 2
Don't know 98
Refused.....99

IF EC4=2 ASK EC4A, IF EC4 = 1 ASK EC5. ELSE CONFIRM INTERVIEWEE IS APPROPRIATE PERSON

EC4a Is energy included as a separate line item in your lease's monthly expenses allocation?

Yes 1
No.....2
Don't know 98
Refused.....99

EC5 What is your best estimate of your average monthly electric bill?

EC5_1 ENTER $ PER MONTH _____ (Range = 10 – 10,000,000)
Don't know 98
Refused.....99

EC6. Is this your organization's only site, or is this site one of multiple sites?

Only site, i.e., single site organization.....1
Part of multiple site organization.....2
Don't Know 98
Refused.....99

EC7. What is the approximate number of full-time equivalent workers of all types employed by your organization at this facility?

EC7_1 ENTER NUMBER _____ (RANGE = 1 – 100,000).....1
Don't Know.....98
Refused.....99

EFFICIENCY-RELATED IMPROVEMENTS

IM3. In the past year, has your organization taken any specific actions to improve its energy efficiency or otherwise reduce energy consumption at this facility?

Yes 1
No 2
Don't Know 98
Refused 99

IF IM3=1 ASK IM4, ELSE SKIP TO IM8

IM4. And in which of the following areas you've taken these energy saving actions? [ACCEPT MULTIPLES, READ LIST.]

Installed efficient lighting equipment 1
Installed efficient HVAC or refrigeration equipment 2
Installed efficient motors or variable speed controls 3
Reengineered manufacturing or process systems to save energy 4
Installed energy management control system or other controls 5
[Don't Read] Other (specify) 6
[Don't Read] Don't Know 98
[Don't Read] Refused 99

[**TEXT FOR EACH OF SIX CATEGORIES ABOVE THAT WERE SELECTED**: **CATEGORY FROM IM4 ABOVE**, e.g., "LIGHTING"]

IM8. In the last year, were there any opportunities to improve energy efficiency or otherwise reduce energy consumption that were identified <u>but not undertaken</u>?

Yes 1
No 2
Don't know 98
Refused 99

ENERGY-RELATED DECISION MAKING

Now I'd like to ask some questions about how your organization makes its energy-related decisions.

DM2a. Would you best characterize the PROCESS to approve major investments in energy efficiency projects in your organization as….[READ LIST]

- Relatively simple and straightforward 1
- Somewhat complex, but manageable 2
- Complex and difficult to get through 3
- Don't know/no answer 98

DM2c. Is the decision PROCESS used to make energy-related equipment selections the same as those used by your organization to make other capital investments?

- Yes 1
- No 2
- Don't Know 98
- Refused 99

IF DM2c=2 THEN ASK DM2d, ELSE SKIP TO DM3a

DM3a. Does your organization have any internal incentive or reward policies for business units or staff responsible for managing energy costs?

- Yes 1
- No 2
- Don't Know/Refused 99

IF DM3a = 1 ASK DM3b ELSE SKIP TO DM4a

DM3b. How do these incentive/reward structures work?

RECORD VERBATIM

DM6. Has your organization assigned responsibility for controlling energy usage and costs to any of the following? [READ LIST]

- An in-house staff person 1
- A group of staff 2
- An outside contractor 3
- No 4
- [DON'T READ] Don't Know 98
- [DON'T READ] Refused 99

DM9. Has your organization developed a specification policy for the selection of energy-efficient equipment? (EXAMPLES: REQUIREMENT THAT ALL NEW FLUORESCENT LIGHTING SYSTEMS USE ELECTRONIC BALLASTS, OR ALL NEW MOTORS BE PREMIUM EFFICIENCY.)

Yes 1
No 2
Don't Know 98
Refused 99

DM12a. Thinking in terms of project payback, what is the payback period that your organization typically requires to approve energy efficiency investments?

DM12A_1. # of Years 1
[ROUND DECIMALS TO NEAREST QUARTER:
.25 = 3 MONTHS
.50 = 6 MONTHS
.75 = 9 MONTHS]
No formal or even approximate criteria used 97
Don't Know 98
Refused 99

EFFICIENCY OFFERS

Now I'd like to ask you a question about energy efficiency service offers you may have received.

EO1. In the past year, has your organization been approached by any companies offering to provide services to improve the efficiency of your facility's energy usage?

Yes 1
No 2
Don't Know 98
Refused 99

FAMILIARITY WITH AND USE OF PERFORMANCE CONTRACTING

Now I'd like to ask some questions about any experience your organization may have with a specific type of energy efficiency related contract.

PC1. How familiar is your organization with the concept of Energy Performance Contracting? Would you say: [DO NOT PROVIDE SPECIFIC DEFINITION, IF RESPONDENT UNSURE, ENTER "3"]

Very familiar 1
Somewhat familiar.....2
Unfamiliar 3
Don't Know.....98
Refused.....99

For the purposes of this survey, we are defining Energy Performance Contracting as follows: a energy efficiency retrofit or new construction project in which the company performing the work is paid fully or partially from the savings actually produced by the project. [DON'T READ BUT NOTE: SAVINGS MAY BE EITHER MEASURED OR STIPULATED]

PC3. And in the past year, has your organization been approached by any companies offering an Energy Performance Contract?

Yes 1
No.....2
Don't Know.....98
Refused.....99

IF PC3=1 ASK PC4b, ELSE SKIP TO SP0

PC4b. Which of the following statements best describes how far you went in the decision making or project development process? [READ LIST]

Heard presentation but did not request proposal(s).....1
Asked for and received formal proposal(s) but did not enter contract negotiations..2
Tried to negotiate contract but failed to come to agreement.....3
Negotiated and signed contract.....4
[DON'T READ] Don't Know 98
[DON'T READ] Refused 99

IF PC4b=1, 2 OR 3 ASK PC5, ELSE IF PC4b=4 SKIP TO PC6b, ELSE SKIP TO SP0

PC5. What were the main reasons you did not enter into an Energy Performance Contract? [RECORD REASONS VERBATIM]

SKIP TO SP0

PC6b. What are the main reasons that you chose an Energy Performance Contract over other forms of project development?

[RECORD REASONS VERBATIM]

AWARENESS AND ASSESSMENT OF SPECIFIC SERVICE PROVIDERS AND PROVIDER TYPES

SP0. Now I'd like to ask you a question about different types of energy services providers.

SP4a_0. On a scale from 0 to 10 where 0 is not credible at all credible and 10 is extremely credible, please rate each of the following types of companies with respect to how credible you think they are as a source of energy-efficiency related information.

SP4A. ROTATE (A – G)

SP4A_1. Engineering / Architectural Design Firms
SP4A_2. Energy Equipment Contractors and Installers (e.g., lighting, HVAC)
SP4A_3. Energy Service Companies, often referred to as ESCOs
SP4A_4. [UTILITY], that is, your electric distribution company
SP4A_5. Companies, besides your electric distribution company, that provide electricity supply, sometimes referred to as Energy Service Providers (ESPs)

BARRIERS

And now I have a few quick questions on two issues that may be barriers that your organization faces with respect to implementing cost-effective energy-efficiency opportunities.

BR1. **A barrier to implementing energy efficiency projects often cited by organizations is uncertainty over the performance and savings of energy efficiency measures. On a scale from 0 to 10, where 0 is completely insignificant and 10 is very significant, how significant are each of the following two factors regarding potential energy efficiency measures?**

BR1a. Uncertainty over whether new energy efficient equipment will perform as well as your existing equipment or new standard efficiency equipment

0 1 2 3 4 5 6 7 8 9 10

Don't know 98
Refused 99

BR1b. Uncertainty over whether actual energy savings will be equal to or greater than estimated savings

0 1 2 3 4 5 6 7 8 9 10

Don't know 98
Refused 99

BR2. **One approach to reducing the uncertainty of energy efficiency project savings is to actually measure savings through metering or monitoring of affected equipment.** Does your organization value validation of actual savings from energy efficiency projects enough to be willing to pay for measurement of savings?

Yes 1
No 2
Depends on specific case 3
Don't know 98
Refused 99

IF BR2 = 1 OR 3 THEN ASK BR2A, ELSE SKIP TO BR3

BR2a. Roughly how much on average, as a percent of as a percent of project savings, is your organization generally willing to pay for measurement of savings?

BR2a_1 ENTER NUMBER _____ (RANGE = 1 – 90) 1
Don't know 98
Refused 99

BR3. Another barrier to implementing energy efficiency projects often cited by organizations is uncertainty about the firms providing the energy efficiency services. Again, on a scale from 0 to 10, where 0 is completely insignificant and 10 is very significant, how significant a problem is

BR3a. Uncertainty over the integrity or trustworthiness of the firm

0 1 2 3 4 5 6 7 8 9 10

Don't know 98
Refused 99

PROGRAMS

PR1. Are you aware of any programs or resources provided by [UTILITY] in 1999 that were designed to promote energy efficiency for businesses like yours? [IF YES:] What types of programs can you recall? [RECORD ALL MENTIONS.]

1	SPC / Standard Performance Contracting	PR2
2	Business energy audits	PR2
3	Distributor incentives	PR2
4	Express Efficiency	PR2
5	Rebates/incentives (non-specific)	PR2
88	Other programs [SPECIFY:]_____	PR2
98	No, not aware of any programs	PR3
99	DK/refused	PR3

PR2. Did your firm participate in any energy efficiency programs offered by [UTILITY], in 1999? [RECORD ALL MENTIONS]

1	Yes, Express Efficiency	PR3
2	Yes, SPC/Standard Performance Contracting	PR3Q97
3	Yes, energy audits	PR3Q97
4	Yes, other [SPECIFY:] _____	PR3Q97
5	No, did NOT participate in other 1999 programs	PR3Q97
99	DK/refused/no more	PR3Q97

PR3. And finally, do you have any other comments or suggestions regarding energy-efficient products and practices, or utility programs that support energy efficiency?
[RECORD VERBATIM]

May I please record your name, simply for verification purposes – a supervisor will confirm a small percentage of the interviews I've done.

Thank you very much for your participation in this very important survey, you've been extremely helpful. I hope you found the process interesting and enjoyable. Thanks again, and have a great day.