

Equipoise Consulting, Inc.

Energy Analysis

Project Management

Training

**Final Report for
Energy Efficiency in
Commercial Food Service
(CPUC 2002-2003 Local Program 113-02)**

Submitted by:

Equipoise Consulting Incorporated

in association with
**Quantum Consulting Inc.,
Energy Solutions, and
RJ Research**

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Section 1

Executive Summary

1.1 Program Summary

In late 2001, the California Public Utility Commission (CPUC) awarded approximately \$100 million to entities outside of the investor owned utilities (IOUs) to implement, in 2002 and 2003, what were called 'Local Third Party Programs'. The Energy Efficiency in Commercial Food Service Program, run by Fisher-Nickel, Inc. (FNI) was a recipient of a portion of that funding and subsequently implemented its program in 2002 and 2003. However, unlike other third party programs, many components of the Energy Efficiency in Commercial Food Service Program had been included under the IOU umbrella of programs in previous years. Managed by the same firm, FNI, since 1994, the program had been previously known as the Food Service Technology Center (FSTC). Because of the seamlessness of this program when it was under the IOU umbrella and during the past two years, this report simply assumes the single name of 'FSTC' to describe the program run in 2002/2003.

The majority of the FSTC efforts focus on commercial cooking appliances, kitchen ventilation, refrigeration, and sanitation appliances, as well as assisting customers in whole facility energy efficiency needs (i.e., shell, lighting and HVAC). As part of this effort, the FSTC works closely with various industry groups such as the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE), the National Restaurant Association/Multiunit Architects, Engineers and Construction Officers (MAECO) group, the National Association of Foodservice Equipment Manufacturers (NAFEM), and Foodservice Consultants Society International (FCSI).

Outreach to disseminate information on nonresidential kitchen efficiency has been a part of the FSTC effort since the late 1980s. This has been accomplished primarily via seminars, workshops, technical report distribution, and long-term promotion of a trade magazine addressing energy efficiency issues.

In 2002, the FSTC increased its efforts to provide energy efficiency information to those considered hard-to-reach (typically very small restaurants whose owners spoke English as a second language). Their site survey support program was expanded to work with collaboratives that assisted in outreach to this community.

1.2 Study Summary

The evaluations of all 2002/2003 programs were required to follow the CPUC Energy Efficiency Policy Manual (November, 2001). The applicable stipulated items from this manual (i.e., the ones that applied to information programs) were used as the stated

objectives for this study. As an information-only program, the specific objectives pertaining to the evaluation of this program were:

1. Providing up-front market assessments and baseline analysis, especially for new programs.
2. Providing ongoing feedback, and corrective and constructive guidance regarding the implementation of programs.
3. Measuring indicators of the effectiveness of specific programs, including testing of the assumptions that underlie the program theory and approach.
4. Assessing the overall levels of performance and success of programs.
5. Helping to assess whether there is a continuing need for the program.

This study followed up on a market effects study of this same program reported on in 1999.¹ As was stated in the Research Plan, this study used the 1999 study as the baseline and attempted to determine if there were appreciable market effects over the intervening five years.

Based on the research plan, data were collected from 13 food service designers, 35 equipment manufacturers, 20 multi-unit specifiers, 4 interviews about the hard-to-reach effort, a census of end user FSTC participants (69), and 76 California end user nonparticipants. The findings were reviewed by a focus group comprised of FSTC Advisory Board members to address key unresolved issues. The hard-to-reach, designer, manufacturer, and multi-unit specifier interviews underwent qualitative analysis, while the participant/nonparticipant telephone surveys were analyzed statistically. The quantitative and qualitative analysis findings were integrated in order to draw the overall conclusions presented in this final report.

1.2.1 FSTC Market Effects

Since the 1999 study, the market effects found by this study are:

- Strong, sustainable FSTC market effects are seen through the ASTM test methods ratified, Energy Star labeling, and advocacy within ASHRAE.
- FSTC continues to produce near-term quantifiable effects for participants (i.e., awareness, knowledge, participant perceptions of market barriers, projected purchase decisions, etc.).
- There were market effects on the nonparticipant end user group in terms of their perception of performance uncertainty as a market barrier. This barrier is specifically addressed by the FSTC, although no direct causality can be attributed to the FSTC.
- The FSTC has had a moderate effect on participating multi-unit specifiers.
- The FSTC continues to have a weak market effect on the designer community.

¹ Pacific Gas & Electric Company's 1998 Food Service Technology Center Market Effects Study. Study ID: 420-MS-D. June 30, 1999.

1.2.2 Continuing Need for Program

Two paragraphs from the evaluation of the FSTC in 1999 continue to be relevant. These words are simply reiterated here:

‘It is important to recognize that the FSTC was almost prophetic in that from its inception in 1986, it has been structured as a market transformation program. From the first Advisory Board meeting in August 1986, the Advisory Board recommended, and the FSTC implemented, a nationally orchestrated approach to develop test procedures, supply information, influence market actors, and, generally, to change the structure of the market to favor energy efficiency.

Clearly, the food service industry is one of the more complex markets to try to change, because of the number and diversity of the market actors. The FSTC program is a good example of how market transformation programs should work, and how long it actually takes to change a very diverse market with no initial energy efficiency infrastructure in place.’²

The 1999 study was the first evaluation to be made of this program. The follow-up study herein indicates that market effects are continuing, albeit the rate of increasing effects is slow. The market characterization from the 1999 study indicated that the food service industry was a \$27 billion dollar a year market in California with close to 72,000 locations within the state (these values are undoubtedly larger at this point, but updating the market characterization was out of the scope of this study). In terms of building type, the food service sector is second only to grocery stores in terms of electric energy use per conditioned square foot and is almost four times larger than the other building types in terms of natural gas energy use per square foot.³

These factors point to the need for continuation of this program, which focuses on all aspects of energy use within the food service sector. At the same time, it must be recognized, based on recent history, that the measured market-place changes will continue to be relatively slow in coming. This slow rate of change is completely consistent with market transformation theory documented by Eto et al (1996).⁴

1.3 Recommendations

The following Program Design recommendations are made:

- 1. Consider Creating Non-Technical Forms of Data Dissemination.** The data indicate that few nonparticipant end users are aware of ASTM test methods.

² Pacific Gas & Electric Company’s 1998 Food Service Technology Center Market Effects Study. Study ID: 420-MS-D. June 30, 1999. Page 6-3.

³ Pacific Gas and Electric Company. Commercial Building Survey Report. 1999. Table 21.

⁴ A Scoping Study on Energy-Efficiency Market Transformation by California Utility DSM Programs, Eto, Prah, Schlegel, July 1996.

Therefore, they cannot take advantage of the energy efficiency benefits defined by the results of these tests, even when they are available. However, with the advent of Energy Star ratings for at least three pieces of cooking equipment, understanding the results of the tests is secondary to knowing what it means to be an Energy Star qualified piece of equipment. The FSTC should consider creating pamphlets or fact sheets targeted to the end user that present information in a non-technical manner. This information should stress not only the energy attributes of specific equipment, but some of the non-energy benefits as well. This could include items such as the cooking characteristics seen with use of the equipment. The non-technical information should be readily accessible on the website as well as being created for hardcopy dissemination.

2. Develop Methods to Expand Manufacturer Involvement in ASTM Test

Methods. The surveys indicate that manufacturers do not actively incorporate the ASTM test methods in their manufacturing process. This makes it difficult for other market actors to assess energy efficiency across various manufacturers of similar pieces of equipment. There are two possible avenues for addressing this issue that are not seen as mutually exclusive:

- Continue to actively pursue all Energy Star labels for other food service equipment types. While time consuming to engender change, once put in place, this is a sustainable effect.
- Develop avenues to encourage manufacturer participation in the ASTM test method ratification process. This could include providing incentives for manufacturers to attend the ASTM conference.

3. Continue the Current Focus of the Program. The concentration of the FSTC program resources on energy efficiency within areas of the food service sector is effective and should be maintained. ASTM testing is a cornerstone of this work and should be continued.

4. Concentrate Seminars on Design and Manufacturing Community. The participant database indicated a significant number of seminars addressed to schools and other non-core groups. While these groups have the ability to change market practices in the very long term, they do not focus on the primary group capable of creating short and medium term effects. In order to maximize short and medium term effects, the evaluation team recommends an assessment of the focus of the seminar effort to the design and manufacturing community. This may call for development of new seminar material, seminar structure, and marketing approach.

Details to support these findings are provided within the body of the report.

Section 2

Introduction

This section presents an overview of the Energy Efficiency in Commercial Food Service Program, a summary study description, and concludes with a discussion of the report layout and content.

2.1 Description of the Program

In late 2001, the California Public Utility Commission (CPUC) awarded approximately \$100 million to entities outside of the investor owned utilities (IOUs) to implement, in 2002 and 2003, what were called 'Local Third Party Programs'. The Energy Efficiency in Commercial Food Service Program, run by Fisher-Nickel, Incorporated (FNI) was a recipient of a portion of that funding and subsequently implemented their program in 2002 and 2003. However, unlike other third party programs, many components of the Energy Efficiency in Commercial Food Service Program had been under the IOU umbrella of programs in previous years. Managed by the same firm, FNI, since 1994, the program previously had been known as the Food Service Technology Center (FSTC). Because of the seamlessness of this program when it was under the IOU umbrella and during the past two years, this report simply assumes the single name of 'FSTC' to describe the program run in 2002/2003. Additionally, because the history of the FSTC is integral to the effects seen within this market effects study, a summary is provided below.

The FSTC was originally conceived and initiated by Pacific Gas and Electric Company (PG&E) in 1986. The conceptualization of the original program was done with the assistance of a focus group composed of experts from throughout the food service industry. This group evolved into the standing FSTC Advisory Board that meets twice yearly to advise on program direction.

At inception, the program used the PG&E Learning Center kitchen as its test facility. In early 1990, it established its own test development laboratory, then expanded the laboratory and included a demonstration kitchen/classroom and offices in late 1992. In 1998, they expanded the storage facility to include storage for large equipment.

From 1986 to August 1994, PG&E operated the FSTC program and facilities. The effort was directed by Bettie [Ferlin] Davis during that period. In August 1994, PG&E outsourced the day-to-day operation of the program and the laboratory/training facility to FNI, who continued to run the program under PG&E until 2002. In 2002, under a changing regulatory structure, FNI proposed and obtained funding for the FSTC as a local third party program. The California Public Utilities Commission has issued a

decision⁵ granting PG&E funding for the operation of the FSTC under contract to FNI for 2004 and 2005 as a local crosscutting program.

In terms of the program focus, the original focus group in August of 1986 recommended that the FSTC broaden its horizons to a national level. Shortly thereafter, the FSTC began efforts to develop test methods for acceptance at the American Society of Testing and Materials (ASTM), the national testing standardization organization. Since that time, the FSTC program has steadily continued to develop test procedures on a progressively expanding list of food service equipment. To date, the FSTC has developed all of the food service test methods currently approved by the ASTM.

The majority of the FSTC efforts focus on commercial cooking appliances, kitchen ventilation, refrigeration, and sanitation appliances, as well as assisting customers in whole facility energy efficiency needs (i.e., shell, lighting and HVAC). As part of this effort, the FSTC works closely with various industry groups such as the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE), the National Restaurant Association/Multiunit Architects, Engineers and Construction Officers (MAECO) group, the National Association of Foodservice Equipment Manufacturers (NAFEM), and Foodservice Consultants Society International (FCSI).

Outreach to disseminate information on commercial kitchen efficiency has been a part of the FSTC effort since the late 1980s. This has been accomplished primarily using the following three modes:

- Workshops, Seminars, Training Sessions – Prior to 1996, the majority of the FSTC training and outreach efforts were concentrated on educating PG&E food service representatives. After that time, the FSTC redirected its efforts toward the broader market. The FSTC now conducts workshops and sponsors seminars for targeted audiences in the food service arena.
- Distribution of Reports – The FSTC uses its equipment testing and test procedure development reports to promote energy efficiency throughout the industry. The FSTC team is currently working on putting these reports onto its website.
- Trade Magazine – In 1990, the FSTC began an effort to develop a food service industry newsletter to promote energy efficiency in commercial kitchens. The newsletter, entitled *Kitchen Monitor*, was sold by subscription and published by Cahners Publishing until 1994, when it was discontinued. At the time it was removed, the subscription base was ~500. Since that time, two food service publishing professionals previously with Cahners Publishing started a follow-up magazine to *Kitchen Monitor* named *Foodservice Equipment reports* (FER). This magazine is distributed free to customers and is supported by advertising revenues. The FSTC has a close working relationship with FER and frequently contributes technical articles on its test results. The current circulation of FER is ~31,000.

In 2002, the FSTC increased its effort to provide energy efficiency information to those considered hard-to-reach (typically very small restaurants or those where the owner

⁵ Interim Opinion Adopting Funding for 2004-05 Energy Efficiency Programs and Addressing Certain Petitions and Motions. Decision 04-02-059, February 26, 2004. Mailed 3/3/2004.

speaks English as a second language). Their audit program was expanded to work with collaboratives that provided needed outreach to this community. The program worked with Cooperatives that serve the HTR community in order to identify and recruit appropriate program participants. The Cooperative supplied the initial contact with the participant in order to overcome reticence or suspicion of outsiders that is often a characteristic of this market sector. As needed, the Cooperative contact would accompany the FSTC staff to the site visit in order to interpret (in the case where the participant did not speak English fluently) or to perform an introduction. In many cases the FSTC staff would set-up the visit after an introduction, and go unaccompanied for the site audit.

Once at the site the FSTC staff would meet with the decision maker, explain what was going to be done, then perform a site audit (sometimes with the owner along, sometimes alone) to identify energy saving opportunities. At the end of the visit the FSTC staff would sit with the decision maker and use a checklist to explain and recommend the energy efficiency opportunities. Afterwards, the FSTC would prepare a report that was delivered either by them or through the Cooperative. The report supplied an analysis of the energy, demand and monetary savings represented by the recommended changes. They focused on low and no cost measures, since these were expected to be most likely to be implemented.

2.2 Description of Study

This study is a market effects evaluation that builds on a market effects study performed in 1999. At that time, CPUC Decision (D.) 95-12-063 called for public spending to shift towards activities that would transform the energy market. Based on the utility performance award mechanisms approved in D. 97-12-103 and updated in Resolution E-3555, adopted July 23, 1998, for the 1998 Energy Efficiency programs, PG&E was directed to use Public Goods Charge (PGC) funds to perform a Market Baseline and Transformation Study on the 1998 FSTC Program. That report was completed on June 30, 1999 and is available online at www.calmac.org. Although subsequent decisions on the focus of PCG funds have since swung toward resource acquisition, as an information-only program that has the potential to transform the market, it was decided that the best evaluation for the 2002/2003 program would be a market effects study. The Research Plan for the present study was reviewed and agreed to by CPUC staff.

All 2002/2003 programs were required to follow the CPUC Energy Efficiency Policy Manual (November, 2001) in regards to the evaluation of their programs. The applicable stipulated items from this manual (i.e., the ones that applied to information programs) were used as the stated objectives for this study. The eight specific objectives are presented first, followed by the EM&V components.

Specific CPUC Stipulated Objectives

1. Measuring level of energy and peak demand savings achieved (except information-only). – *This is an information only market transformation program and, as such, this objective does not apply.*
2. Measuring cost-effectiveness (except information-only) – *This is an information only market transformation program and, as such, this objective does not apply.*
3. Providing up-front market assessments and baseline analysis, especially for new programs – *The FSTC underwent a complete market characterization and a baseline was established in the 1999 FSTC Market Effects Study. This evaluation used the 1999 baseline to assess the effects of the FSTC program on the relevant markets and established a new baseline for future analysis.*
4. Providing ongoing feedback, and corrective and constructive guidance regarding the implementation of programs. – *Feedback on program design and implementation practices that may maximize the effectiveness of the program were included as part of this final evaluation report.*
5. Measuring indicators of the effectiveness of specific programs, including testing of the assumptions that underlie the program theory and approach. *The Equipoise Team articulated the program theory and updated possible indicators of effects as part of this evaluation.*
6. Assessing the overall levels of performance and success of programs. *The Equipoise Team assessed the extent to which the program is achieving its stated objectives. The study documented progress toward transformation of the commercial food service market since the previous study.*
7. Informing decisions regarding compensation and final payments. – *This point is not required.*
8. Helping to assess whether there is a continuing need for the program. – *The evaluation team included an assessment of the continuing need in this report.*

EM&V Components

Baseline Information

A baseline for this assessment was clearly established as part of the 1999 FSTC Market Effects Study. This information was used to assess the progress that the FSTC has made since that time.

Energy Efficiency Measure Information

The program is considered a market transformation program. Progress was measured by assessing indicators that the market is being transformed and attempting to establish causal links between the changes in the market and the actions of the program.

Measurement and Verification Approach

The Energy Efficiency Manual states: ‘Information-only programs require an evaluation plan, but will not require the measurement and verification (M&V) components.’⁶ As this program is declared an information-only program in all the filings, it does not require any measurement or verification of savings.

Evaluation Approach

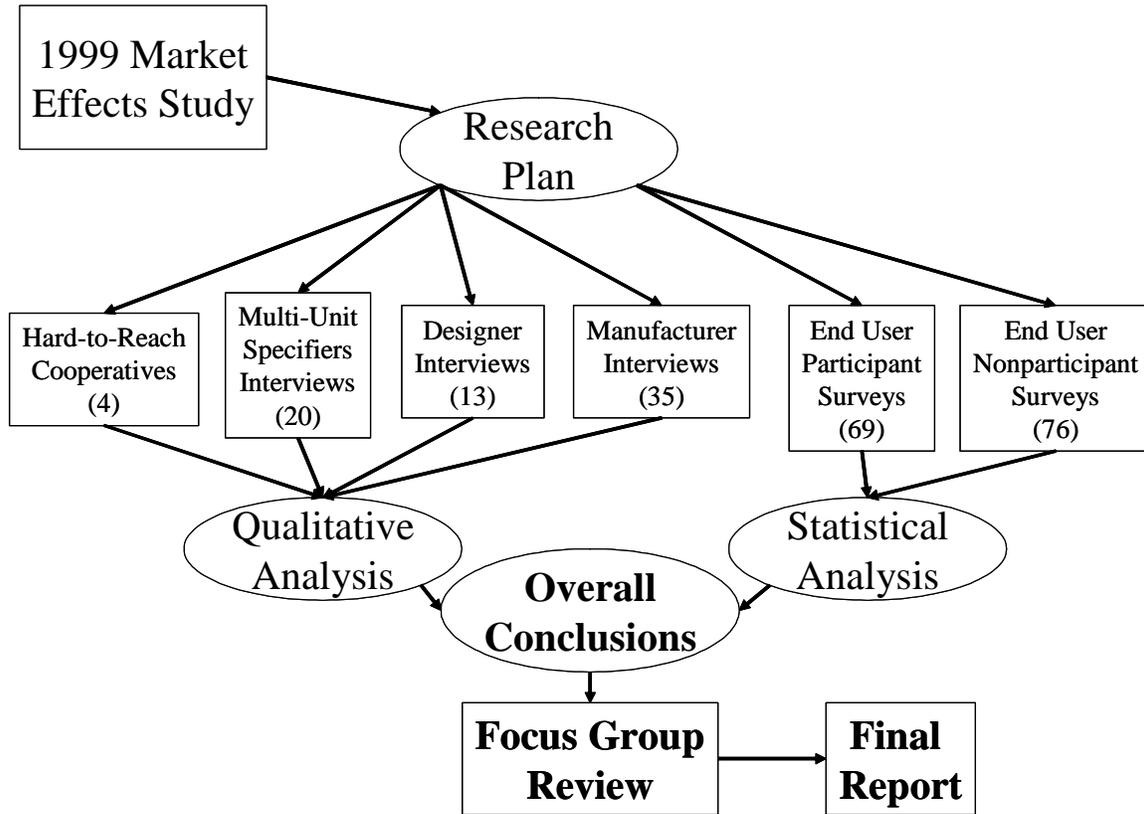
⁶ CPUC Energy Efficiency Policy Manual, Version 1.0, October 2001. Draft of November 29, 2001. Page 31.

To accomplish these goals, the evaluation approach illustrated in Exhibit 2.1 was developed. This approach incorporated the following key elements:

- The 1999 Market Effects study was used to inform the research plan.
- Based on the research plan, data were collected from the following:
 - 13 food service designers (engineering interviews),
 - 12 cooking equipment manufacturers (engineering interviews),
 - 12 refrigeration equipment manufacturers (engineering interviews),
 - 11 ventilation equipment manufacturers (engineering interviews),
 - 10 multi-unit specifier participants (engineering interviews),
 - 10 multi-unit specifier nonparticipants (engineering interviews),
 - 4 in-depth interviews regarding the hard-to-reach audits (engineering interviews),
 - A census (69) of end user FSTC participants over the past five years (telephone surveys),
 - 76 California end user nonparticipants (telephone surveys).
- The engineering interviews underwent qualitative analysis, while the participant/nonparticipant telephone surveys were analyzed statistically.
- The findings were reviewed by a focus group comprised of FSTC Advisory Board members to address key unresolved issues.
- The quantitative and qualitative analysis findings were melded into overall conclusions and are documented in this report.

Details of the approach and analysis techniques are presented in Section 4.

Exhibit 2.1
Evaluation Flow Diagram



2.3 Report Layout

This report is divided into seven sections plus the supporting appendices. These are:

Section 1. Executive Summary –supplies a synopsis of the report findings.

Section 2. Introduction – introduces the program, presents a synopsis of the evaluation approach, and summarizes the report layout.

Section 3. Theoretical Framework – presents the theory behind the analysis approach.

Section 4. Method – presents the approach used to analyze the data and derive the results.

Section 5. Evaluation Results – presents the findings of the evaluation.

Section 6. Recommendations – discusses recommendations emanating from the evaluation.

The appendices contain the full detail of data collection and analysis efforts required to support the body of the report.

Section 3

Theoretical Framework

The Equipoise Team used the following general methodologies to address the issues identified above.

3.1 Market Effects and Baseline Assessment

The Equipoise Team relied heavily on the 1999 FSTC Market Effects Study as a starting point for this evaluation. That study included a complete market characterization, an assessment of the existing market barriers, and forms the baseline for this evaluation.

While it could be argued that this study should only assess the effects of the current program funding cycle, that approach would necessitate throwing away the baseline established in the 1999 study and would require commencing this study with no clear baseline. In addition, such a study would be attempting to measure market effects over a 21-month period, severely limiting the ability of the evaluation to find measurable program effects. Because this was not considered optimum, the Research Plan for this evaluation stated an intention to assess the FSTC market effects from 1999 through mid 2003. The Equipoise Team then carried out that plan.

Program Market Barriers. The market barriers and market effects assessed in the 1999 FSTC Market Effects Study, stated in the terms used in Eto, et al. (1996), are as follows:

- Organizational Practices,
- Performance Uncertainty,
- Information and Search Costs,
- Asymmetric Information,
- Split Incentives, and
- Product or Service Unavailability.

These six market barriers (defined in Section 3.3) were identified by the Equipoise Team during the 1999 evaluation, validated as probably the most relevant market barriers by the FSTC Advisory Board, and assessed during the 1999 evaluation as to the degree that they were affected by the FSTC activities. While this list of barriers was considered the best list to start with, it was reassessed several times as the project proceeded.

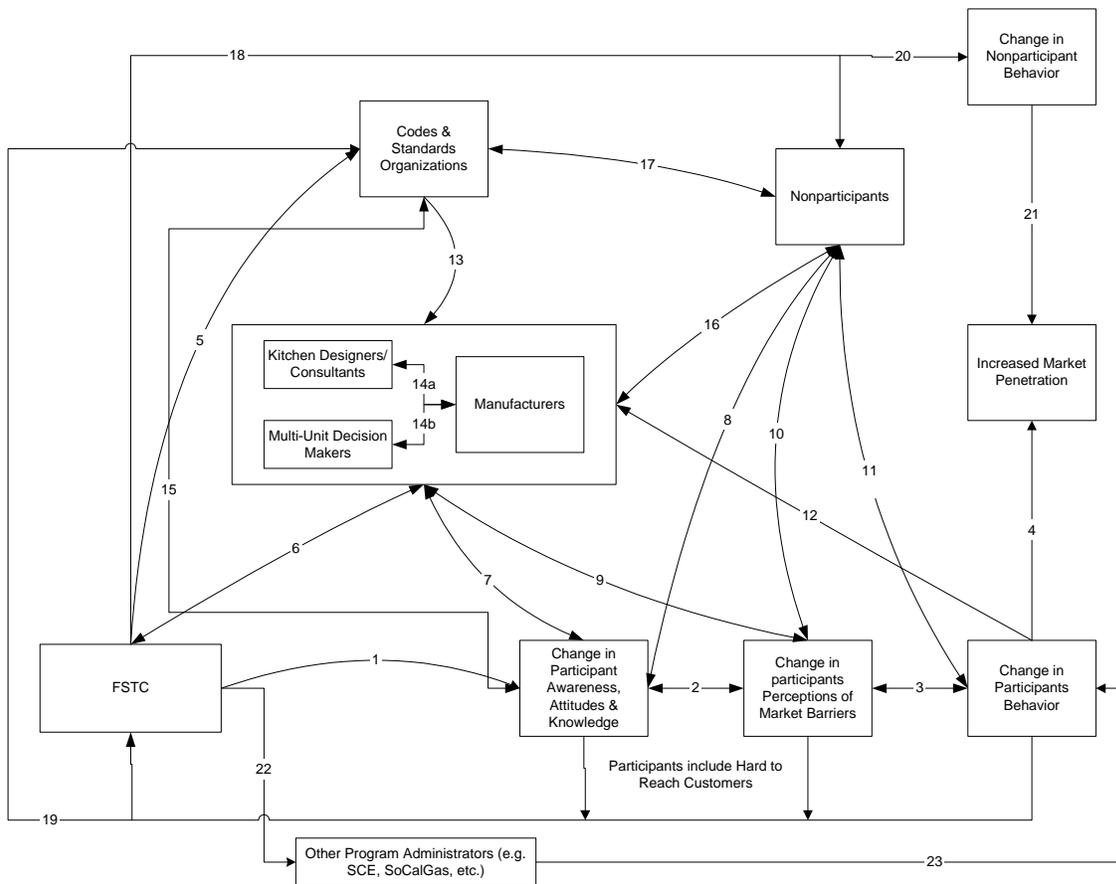
As with the 1999 study, the Equipoise Team performed a rigorous quantitative assessment of market effects for cooking, refrigeration and ventilation end-uses. These end uses have clearly established baselines to use for measuring market effects.

Additionally, the lighting, HVAC, and water heating end uses were added to this year's study.

3.2 Developing Causal Linkages and Assessing Market Effects.

With the barriers and equipment types established, the evaluation team finalized the methods for investigating causal linkages. Exhibit 3.1 presents the logic model of the FSTC Program developed in conjunction with FNI/FSTC staff, and Exhibit 3.2 provides the description of the linkages indicated in the logic model.

**Exhibit 3.1
Program Logic Model**



**Exhibit 3.2
Linkage Descriptions**

Linkage	Causal/Communication Link Description
1	Workshops, seminars, symposia, classes, and demonstrations conducted by the FSTC may increase awareness and knowledge of energy efficient

Linkage	Causal/Communication Link Description
	equipment. As a result, it is expected that participants will have a more positive attitude toward energy efficient equipment.
2	Participants may perceive certain market barriers to be reduced. For example, their concerns regarding performance uncertainty may be lessened.
3	Participants may purchase or plan to purchase energy efficient equipment.
4	Over time, as participants change their purchase behavior, the penetration of energy efficient equipment will increase.
5	The FSTC develops test methods for use in establishing codes and standards that are then adopted, used or incorporated in codes and/or standards by various organizations (e.g., ASTM, DOE (Energy Star), CEC, ASHRAE).
6	The FSTC informs manufacturers, distributors, multi-unit decision makers, and designers about energy efficient equipment. The manufactures may request that the FSTC test their equipment. Multi-unit decision makers, distributors and designers may also request information about energy efficient equipment.
7	Increased awareness and knowledge of energy efficient equipment may result in participants seeking more information from manufacturers and kitchen designers regarding performance, cost, durability, etc.
8	Participants may interact with nonparticipating end users and, as a result, affect those end users' awareness, knowledge, and attitudes toward energy efficient equipment.
9	Reduction in market barriers is expected to result in participants seeking more information from manufacturers and kitchen designers regarding performance, cost, durability, etc.
10	Reduction in market barriers is expected to result in participants conveying to nonparticipating end users their confidence in the performance capabilities of energy efficient equipment.
11	Changes in participants, and their interactions with nonparticipating end users, may affect nonparticipant purchase decisions.
12	Participants' openness to the purchase of energy efficient equipment may result in participants demanding a variety of data such as equipment performance data or demanding that certain equipment meet certain performance standards.
13	The ASTM provides manufacturers, distributors, and designers with standard testing methods. Codes and standards organizations supply manufacturers, distributors, and designers with standard specifications for equipment.
14a	As designers become more knowledgeable about energy efficient equipment, they increasingly request performance data from manufacturers. Designers increase the use of performance specifications in their equipment

Linkage	Causal/Communication Link Description
	requirements. In addition, as manufacturers increase their customers' appreciation of performance data, they increase the extent to which they provide such data to their customers.
14b	As multi-unit decision makers become more knowledgeable about energy efficient equipment, they increasingly request performance data from manufacturers or mandate that only equipment that meets specific performance criteria be purchased. Multi-unit decision makers increase the use of performance specifications in their equipment requirements. In addition, as manufacturers increase their customers' appreciation of performance data, they increase the extent to which they provide such data to their customers.
15	As a result of their FSTC experience, participants may be more aware of the ASTM standard testing methods, and other codes and standards.
16	As information becomes more readily available, manufacturers and designers may provide information on energy efficient equipment to nonparticipating end users.
17	The codes and standards may also provide nonparticipating end users with information regarding standards or codes based on the test methods.
18	Nonparticipating end users may be influenced by the FSTC indirectly via publications.
19	After their exposure to the FSTC, participants may request additional information from the FSTC or the codes and standards organizations on the energy efficiency and equipment performance.
20	The information from the FSTC, ASTM, codes and standards, manufacturers, designers, and participants may combine to induce nonparticipant end users to purchase energy efficient equipment.
21	It is expected that, over time, as nonparticipant end users change their purchase behavior, penetration of energy efficient equipment will increase.
22	FSTC supplies technical information to other program administrators to support their program incentive efforts.
23	Other program incentives cause their program participants to change their purchasing behavior.

When moving from left to right in Exhibit 3.1, the indicators of market effects become increasingly long term. The near term, or proximate, indicators are changes in awareness, attitudes and knowledge. The medium-term indicators are changes in participants' perceptions of the factors that keep them from acting (market barriers). Finally, the long-term indicators are actual changes in behaviors of participants, nonparticipants, and subsequent changes in market penetration of targeted efficient

technologies. Because, as discussed above, the evaluation is looking at market effects over a fairly short period (for a market effects program), and because this is a purely informational program, the Equipoise Team only attempted to measure program market effects for short-, and possibly medium-term indicators.

3.3 Market Barrier Definitions

The following is a general description of how each market barrier that was studied is manifested in the food service market. The definitions are based on 'A Scoping Study on Energy-Efficiency Market Transformation by California Utility DSM Programs', Eto, Prahl, Schlegel, July 1996.

Organizational Practices. This barrier is comprised of organizational behaviors or systems of practices that discourage or inhibit cost-effective energy efficiency decisions. Among end users, this barrier manifests itself as separate decision-making when (1) purchasing equipment and (2) considering long-term maintenance and operating cost. In general, only first cost is considered and long-term payback is not taken into account. This is because capital funds tend to be reserved for business expansion, where users believe there will be a greater return on investment. It is these relatively more attractive, competing investments that suppress the consideration of energy efficiency options.

Among manufacturers, it is manifested in a slow change from traditional products and production techniques, along with a reluctance to spend money on retooling for new products.

Among manufacturers' representatives, it emerges because representatives are captive to the line of equipment the manufacturer produces. If their manufacturer does not have efficient equipment, they try to steer the customer away from energy efficiency.

For the designer, the issue is that their customers are generally demanding lowest first-cost because of the value put on capital for expansion. As a result, they are generally responding to customer demand and find 'selling' energy efficiency an uphill battle.

For all of the other market actors, this market barrier is closely connected to the high value they put on the present value of money. As organizations, they tend to have somewhat high discount rates, i.e., they do not believe that future savings from efficient equipment offset the current value of the money.

Performance Uncertainty. Performance uncertainty is the difficulty consumers face in evaluating claims about future benefits that may be derived from an energy efficient piece of equipment. All types of users, except the designers, identified performance uncertainty as an issue. Designers are considered the best-informed market actors because they are required by their trade to gather information on a spectrum of equipment in order to make intelligent recommendations to their customers.

Asymmetric Information. This is another aspect of the difficulty consumers face in evaluating the veracity, reliability, and applicability of claims made by sales personnel for energy efficient products. This barrier reflects the fact that sellers of energy efficient

product or services typically have more or better information about their offerings than do consumers. It also reflects the incentive that the sellers have to provide misleading information. The asymmetric information market barrier arose only for the nonparticipants as they tend to have the least amount of information with which to determine truth in sales claims.

Information and Search Costs. These are costs of identifying energy efficient products or learning about energy efficient products or services. The information and search cost market barrier is probably due to a lack of awareness in the industry of the value of energy efficiency. This lack of awareness is tied to the low interest in energy efficiency in this sector arising from the fact that energy costs are such a low percentage of overall operating costs.

Split Incentives. This barrier covers institutional relationships where the incentives of an agent charged with purchasing energy efficiency equipment are not aligned with those of the person who would benefit from the purchase. The split incentives market barrier, while only associated with the end user, is still considered to be a significant barrier because it appears to apply to all but the most integrated companies. The general practice in the industry seems to be that there is no connection between the operational decision-making process and new construction or purchasing decision-making processes. This market barrier is strongly associated with the high value placed on the present value of capital funds for growth. Because of this, all capital expenditures are viewed under the 'lowest first cost' microscope, and the food service equipment costs simply fall within the overall category of capital costs.

Product Availability. This barrier, originally named 'product unavailability' in the Eto (1996) report, is about the adequacy of supply. Renamed 'product availability' within this study, this market barrier plays a role for several market actors. For end users, equipment must be readily available in the size they need when they need it. If not, it is less likely to be installed. Similarly, for larger chains it must be available nationwide. If not, it is unlikely to be adopted. For the manufacturers' representatives, if it is not available in their product line, they will not promote it. Designers need to have a range of equipment to offer their customers. If they have only one efficient model, it becomes much harder to fit it into the designs and to sell the customer on its unique advantages.

3.4 Assessment Methods.

Several approaches can be used to investigate market effects that may have been caused by the FSTC, with some being more rigorous than others.

Method 1. To investigate rigorously the research hypothesis that the FSTC has caused certain market effects, the evaluation compared a group of nonparticipants who are unaware of the FSTC with a group of aware end users (program participants). As with the 1999 study, a comparison group from within California was used. In-state comparison groups were used because of the large number of nonparticipants to choose from within California, because the national focus of the FSTC standards efforts can

confound the measurement, and because using an in-state comparison group minimized cost-of-living differences between the groups.

The quantitative analyses, using Equation 1, provided frequencies and univariate statistics on the closed-ended questions. In addition, using cross-tabs and regression analysis, how attitudes, knowledge, perceptions of market barriers, and demand for testing information are changed by variables such as whether one is aware or unaware of the FSTC, years in business, end use, type of restaurant, and size of business were investigated.

$$AKPD = \alpha + \beta_1 DV + \sum_{k=1}^K \beta_k X_k \quad (1)$$

where:

AKPD = Various measures of attitudes, knowledge, perceptions regarding efficient technologies and market barriers, and demand for testing information

DV = Dummy variable indicating whether one is aware or unaware of the FSTC

X_k = Firmographic economic characteristics.

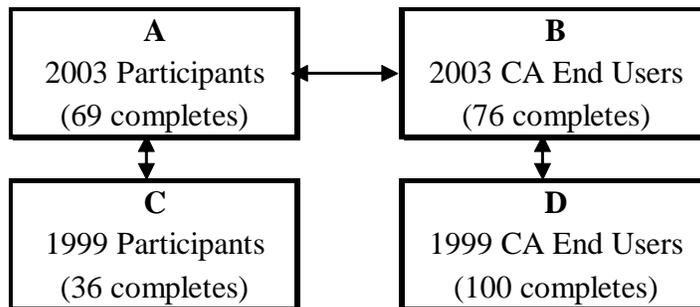
β₁ = Changes in AKPD as a function of whether one is aware or unaware of the FSTC.

β_k = Changes in AKPD given a one unit change in various firmographic and economic characteristics.

The evaluation team also compared baseline data collected from participants and nonparticipants in the 1999 study to data collected from 2003 FSTC participants and nonparticipants in order to assess any market effects over the last four to five years.

Exhibit 3.3 illustrates the linkages that the team investigated.

Exhibit 3.3
Linkages Investigated



Each comparison is described below:

2003 Participants to 2003 Nonparticipants (A:B). Compares self-reported information to determine whether the FSTC is continuing to produce the same levels of self-reported market effects

2003 Nonparticipants to 1999 Nonparticipants (B:D). Compares 1999 nonparticipating end users to 2003 nonparticipating end users to determine if there have been any market effects among the nonparticipating population over the last five years.

2003 Participants to 1999 Participants (A:C). Compares in a rigorous manner 1999 FSTC participants and 2003 participants in order to determine if there have been any market effects among the participating population over the last five years.

Method 2. This method consists of less rigorous methods, generally referred to as qualitative assessment. Qualitative assessment is generally used where the number of data points is too small to be assessed statistically. Method 2 relies on the following sources to estimate any market effects and estimate any causal connections between any estimated market effects and the FSTC:

1. Number of standard test procedures developed over time
2. Self-reports by manufacturers (supplemented by statistical test when over 30 respondents)
3. Self-reports by designers
4. Self-reports by multi-unit specifiers

The last three data sources involve self-reports from manufacturers, commercial kitchen designers, and multi-unit specifiers regarding the extent to which changes occurred in their knowledge of and attitudes toward energy-efficient technologies, and perceptions of changes in various market barriers. Each of these groups had populations that were too small to allow collection of significantly larger samples.

3.5 Research Hypothesis Testing

Testing of research hypotheses involved a wide variety of techniques to match the equally wide variety of both quantitative and qualitative data. Eight specific research hypotheses are presented below regarding the extent to which the FSTC has caused a reduction in certain market barriers for FSTC participants, FSTC nonparticipants, designers, manufacturers, and multi-unit specifiers and has, as a result, changed their behaviors regarding the purchase of efficient cooking, refrigeration, or ventilation equipment. Each research hypothesis is described, followed by a description of the data and the associated analytical technique(s) used to test these hypotheses.

Research Hypothesis #1: FSTC Participant End Users

FSTC activities will cause participants to experience an increase in awareness and attitudes with respect to energy-efficient cooking, refrigeration, and ventilation equipment.

To test this hypothesis, FSTC end user participants were compared to FSTC end user nonparticipants with respect to attitudes, awareness and behavior. A combination of statistical tests, including t-tests and regression analyses, were used. When regression analysis was used, an attempt to control for self-selection bias was made.

Research Hypothesis #2: FSTC Participant End Users

The FSTC will reduce market barriers for FSTC participants.

To test this hypothesis, FSTC end user participants were compared to FSTC end user nonparticipants with respect to their perceptions of market barriers. A combination of statistical tests, including t-test and regression analysis, was used. When regression analysis was used, an attempt to control for self-selection bias was made.

Research Hypothesis #3: FSTC Participant End Users

FSTC activities will cause participants to increase the extent to which they 1) share information regarding energy-efficient technologies, 2) require performance data for competing products, 3) require testing of products using the FSTC test methods and 4) purchase energy-efficient equipment.

Two techniques were used to test this hypothesis. First, participants were asked to self-report changes in their behavior before and after their participation in FSTC activities. A t-test was used to determine if the difference between pre- and post-participation responses was statistically significant.

Second, FSTC participants were compared to FSTC nonparticipants with respect to their behavior. A combination of statistical tests, including t-test and regression analysis, was used. When regression analysis was used, an attempt to control for self-selection bias was made.

Research Hypothesis #4: Nonparticipating End Users

FSTC activities will cause nonparticipants to increase the extent to which they 1) share information regarding energy-efficient technologies, 2) require performance data for competing products, 3) require testing of products using the FSTC test methods and 4) purchase energy-efficient equipment.

As depicted in Exhibit 3.1, there are a variety of direct and indirect causal linkages between the participating and the nonparticipating end users. Certain questions asked of FSTC participants, manufacturers, and designers, and nonparticipating end users were used to estimate the influence of the FSTC on the behavior of the FSTC nonparticipating end users. This analysis was qualitative in nature and required construction of a coherent, internally consistent story about the influence of the FSTC on nonparticipating end users from the perspectives of key market actors.

Research Hypothesis #5: Manufacturers

The FSTC will reduce market barriers for manufacturers, leading to an increase in the extent to which they: 1) use FSTC test data and 2) use standardized test methods to develop new equipment.

As depicted in Exhibit 3.1, there are a variety of causal linkages between the FSTC and manufacturers. Certain questions asked of FSTC participants, manufacturers, designers, multi-unit specifiers, and nonparticipating end users were used to estimate the influence of the FSTC on the behavior of manufacturers. This analysis was qualitative in nature and required construction of a coherent, internally consistent story about the influence of the FSTC on manufacturers from the perspectives of key market actors.

Research Hypothesis #6: Designers

The FSTC will reduce market barriers, leading to an increase in the extent to which they: 1) request performance data, 2) recommend energy efficient-equipment, and 3) share information on energy-efficient equipment.

As depicted in Exhibit 3.1, there are a variety of causal linkages between the FSTC and designers. Certain questions asked of FSTC participants, manufacturers, designers, and nonparticipating end users will be used to estimate the influence of the FSTC on the behavior of designers. This analysis was qualitative in nature and required construction of a coherent, internally consistent story about the influence of the FSTC on designers from the perspectives of key market actors.

Research Hypothesis #7: Multi-Unit Decision Makers (Specifiers)

The FSTC will reduce market barriers, leading to an increase in the extent to which multi-unit specifiers: 1) request performance data and 2) recommend energy efficient-equipment.

As depicted in Exhibit 3.1, there are a variety of causal linkages between the FSTC and multi-unit specifiers. Both participating and nonparticipating multi-unit specifiers were interviewed to determine the effect of the FSTC on this market actor. This analysis was qualitative in nature.

Research Hypothesis #8: Sustainability

Any observed market effects attributable to the FSTC are sustainable.

The hypothesis was considered to be at least partially supported if the predicted near-term effects of the FSTC on participants were observed. In addition, self-reports from FSTC participants, designers, manufacturers, multi-unit specifiers, and nonparticipants were used to test this hypothesis. The other activities in which the FSTC participates, such as creation of testing methods, work in the codes and standards area, and interactions with other professional agencies were also used to create a qualitative indication of sustainability.

Section 4

Methodology

This section of the report identifies the data sources for the evaluation and describes the analytical approaches used for each type of assessment.

4.1 Data Sources

This subsection discusses the existing data sources used to inform the evaluation, the sample design for further data collection (by data collection type), and then summarizes the actual data collected.

4.1.1 Existing Data

The participants in FSTC activities were obtained from the database maintained by the FSTC. This database contained contact information from 1999 to July 2003. Exhibit 4.1 shows the specific seminars and number of attendees that were used to create the population for the participant end user survey. Additionally, contact data were used to create the population for the participant multi-unit specifiers interviews and helped to complete the population for the ventilation manufacturer interviews.

**Exhibit 4.1
Participant Population from Workshops and Seminars**

Year	Seminar	N	Total for Year
1999	Emmissions Feb.	34	85
	Designing an Energy Eff. Kitchen Mar.	15	
	Energy Management Systems Oct.	14	
	Advanced Cooking Technologies Nov.	22	
2000	Booster Heaters & Dishwashing Machines Feb	7	56
	Optimizing Exhaust Hoods April	15	
	Notebook of a Site Survey Engineer Sept	7	
	Advanced CKV Oct	16	
	Kitchen Design Dec	11	
2001	Refrigeration Strategies Mar	12	108
	On-Line Kitchen April	13	
	Refrigeration Rebates April	10	
	Booster Heater Incentive July	17	
	Energy Efficient Restaurant Sept	21	
	Water & Energy Savings w/EBMUD Sept	10	
	Energy Efficient Kitchen Oct	25	
2002	Energy Efficiency 2002 ... a workshop for commercial food service - March	52	145
	Lawrence Livermore National Laboratory - Energy Efficiency Measures May	5	
	Self Serve Site Survey July	6	
	Energy Efficient Restaurant July	6	
	Self Service Site Survey Aug	3	
	Equipment Specifications Aug	3	
	Self Serve Site Survey - Bakersfield Aug	21	
	Lighting Oct	6	
	Refrigeration Nov	11	
Adanced CKV Dec	32		
2003	Center for Small Business and the Environment Jan	19	123
	Water & Energy Efficiency Feb 13	10	
	Water & Energy Efficiency Feb 20	7	
	Energy Efficiency-Front of House Mar 13	3	
	Energy Efficiency-Front of House Mar 27	12	
	Self Serve Site Survey April 10	4	
	Self Serve Site Survey - SMUD - April 3, 2003	12	
	Self Serve Site Survey April 24	5	
	Equipment Perf. May 15	5	
	Equipment Perf. May 29	8	
	Fundamentals CKV June 5	9	
	Fundamentals CKV June 26	10	
	Refrigeration July 10	5	
	Refrigeration July 24	14	
Total		517	

4.1.2 Sample Design

This section presents the data collection sample design by market actor type.

4.1.2.1 Participant End User

Construction of Frame - For the purposes of the evaluation, participants were defined as all end users who had contact with the FSTC, either through visits to the San Ramon site or outreach by the FSTC staff at various sites throughout California. Only participant end users were considered to be part of the sample frame. The FSTC database was used to obtain contact information. The database began with 517 unique names of people who had participated in seminars located within California from 1999 through July of 2003. An additional sample of end users was provided by the FSTC when it was recognized that among the seminar participants were many people who were not considered end users. This second sample consisted of a listing of names from the FSTC database of people with audits or contacts other than a seminar. Records were dropped as shown in Exhibit 4.2, leaving 462 names for the participant telephone survey.

**Exhibit 4.2
FSTC Participants in Sample**

N	Population
517	Attendees across all years and all seminars
351	Records with names grouped across all years of participation
244	Sample #1
239	New sample from FSTC including site surveys (Sample #2)
-21	Records removed due to no phone or duplicate names
462	Total sample provided for telephone survey (Sample #1 + Sample #2 - Duplicate Records)

Sample Selection – The 462 sample names were randomly ordered and a census was called. The final survey instrument, along with the responses to the survey, and call disposition can be found in Appendices A and B.

4.1.2.2 Nonparticipant End User

Construction of Frame - Since this study was designed as a statewide study, the sample frame consisted of all restaurants in California. The NDP Food Services Group offers food service industry information via a database called RECOUNT®. RECOUNT® tracks unit counts for chain and independent restaurants by market and trade area across the U.S. and Canada. Restaurants are identified by chain affiliation or independent ownership, service style, food specialty, address, phone number, zip code, city, county, market area and region. A portion of this database was purchased and used to construct the California nonparticipant sample frame, from which a random sample was drawn for interviewing.

Construction of Frame – In the Spring 2003 release of the RECOUNT database, there were a total of 68,516 quick-service and full-service restaurants throughout California. There were nine counties in which the number of restaurants per county would have created less than two restaurants in the sample. Therefore, restaurants from Alpine, Colusa, Del Norte, Glenn, Lassen, Mariposa, Modoc, Sierra, and Trinity counties were not included in the sample frame. This left 68,247 restaurants from which 3.08% were

randomly pulled from each county for the sample frame. A total of 2,105 nonparticipating end user names comprised the sample frame.

Sample Selection

The key question is whether the achieved sample reflects the population of California restaurants. That is, is there any evidence of non-response bias in the achieved sample? To answer this question, the 2,105 restaurants from NPD were compared to the 76 restaurants in the achieved sample with respect to chain versus independent, full-service versus quick-service, and the four combinations of ownership and service style. Exhibit 4.3 through Exhibit 4.5 present these three comparisons.

Exhibit 4.3

Starting Sample and Achieved Sample by Ownership

Survey Year	Sample	Chain	Independent	Total
2003	Starting Sample	42.4%	57.6%	100%
2003	Achieved Sample	44.7%	55.3%	100%
1999	Starting Sample	42.2%	57.8%	100%
1999	Achieved Sample	46.0%	54.0%	100%

Exhibit 4.4

Starting Sample and Achieved Sample by Service Style

Survey Year	Sample	Full-Service	Quick-Service	Total
2003	Starting Sample	48.5%	51.5%	100%
2003	Achieved Sample	50%	50%	100%
1999	Starting Sample	47.2%	52.8%	100%
1999	Achieved Sample	47.0%	53.0%	100%

Exhibit 4.5

Starting Sample and Achieved Sample by Ownership/Service Style Combinations

Year	Sample	Full-Service/ Chain	Full-Service/ Independent	Quick-Service/ Chain	Quick-Service/ Independent
2003	Starting Sample	8.93%	39.52%	33.44%	18.10%
2003	Achieved Sample	14.5%	35.5%	30.3%	19.7%
1999	Starting Sample	19.9%	32.9%	37.9%	9.3%
1999	Achieved Sample	17.0%	36.0%	37.0%	10.0%

Analyses performed on the starting sample versus the achieved sample using chi-squared tests indicate that the observed differences between the two samples are not statistically significant for any of the comparisons (independent versus chain, full-service versus quick-service, and the four combinations of ownership/service style). Therefore, it can be concluded that there is no sign of non-response bias based on ownership or service style in either the 1999 or 2003 study. The final survey instrument, responses to the survey, and call disposition can be found in Appendices A and B.

4.1.2.3 Manufacturer

Construction of Frame – Since the sale of manufacturers’ product is national, it was determined that exclusion of manufacturers outside of the state of California would be inappropriate. Therefore, manufacturers located within the United States or those with a large percentage of their product sold in the US, but which were located in Canada, were included in the sample frame. The Internet site of the North American Association of Food Equipment Manufacturers (NAFEM) was the source for the sample frame for the cooking and refrigeration manufacturers (<http://www.nafem.org>). The specific manufacturers were narrowed by the categories available on the website. Cooking manufacturers for specific primary cooking equipment⁷ were used to create the sample frame. Refrigeration manufacturers were similarly narrowed.⁸

This site did not maintain a separate grouping for ventilation manufacturers. Therefore, contact data from the FSTC were used to create the ventilation manufacturer sample frame. This data included names of manufacturers that FSTC had worked with as well as known manufacturers of ventilation equipment that the FSTC had not worked with.

Exhibit 4.6 shows the starting sample frame size for each manufacturer type.

⁷ Primary Cooking Equipment: Bake & Roast Ovens; Barbecue Ovens; Broilers/Conveyor; Broilers/Electric; Broilers/Gas; Broilers/Infrared; Broilers/Overfired; Broilers/Underfired; Char Broilers; Combination Ovens/Convection, Steam; Combination Ovens/Microwave, Convection; Convection Ovens; Conveyor/Broiler Ovens; Deck Ovens; Double Boiler/Steamers; Fryers Open/Countertop; Fryers Open/Electric; Fryers Open/Gas; Fryers/Pressure; Fryers/Stove Top; Griddles; Grills/Charbroiler; Heavy Duty Ranges; Induction Ranges; Induction Stoves/Tabletop; Ovens/Convection; Ovens/Cook & Hold; Ovens/Deck; Ranges/Convection Oven Bake; Ranges/Heavy Duty; Ranges/Induction; Steam Jacketed Kettles;

⁸ Refrigeration & Ice Machines: Cabinets/Refrigerated; Coolers/Reach-in (see Refrigeration); Coolers/Walk-in (see Refrigeration); Freezer Bases/Undercounter Units; Freezers/Reach-in; Freezers/Roll-in; Freezers/Walk-in; Ice Dispensers; Ice Machines/Cubers, Flakers; Reach-in Freezers; Reach-in Refrigerators; Refrigerators/Roll-in; Roll-ins; Walk-in Coolers; Walk-in Freezers; Walk-in Refrigerators;

Exhibit 4.6
Sample Frame Size for Manufacturers

Manufacturer Type	Size of Frame
Cooking	110
Refrigeration	104
Ventilation	80

Sample Selection – For each manufacturer type, the data points were given a random number and called in that order. The final survey instrument, responses to the survey, and call disposition can be found in Appendix D

4.1.2.4 Designer

Construction of Frame – There are a relatively small number of kitchen designers in the nation. These designers perform work throughout the United States, and often internationally. The frame was based on kitchen designers located within the United States and came from the Internet site of the Foodservice Consultant Society International (<http://www2.fcsi.org/directory/directorysearch.taf>).

The frame consisted of 36 names of kitchen designers that represented 23 different companies.

Sample Selection – Each Company was given a random number and called in that order for solicitation in the designer survey. Each person within the company was randomly chosen as the first to call for solicitation. Once a person within a company had completed the survey, no other names were called within that company.

The final survey instrument, responses to the survey, and call disposition can be found in Appendix C.

4.1.2.5 Multi-Unit Specifiers

Construction of Frame – The participant multi-unit specifiers were obtained from the FSTC contact database. These were people who had participated in a seminar ((Multi-Unit Foodservice Symposium, September 8, 2002) or companies with which the FSTC had been working on a regular basis. There were 22 names representing 12 companies in the sample frame.

The nonparticipant sample frame came from the Multi-Unit Architects, Engineers, and Construction Officers (MAECO) membership list. This list was made available to the evaluation team by the FSTC. Because this list contained names of companies that were not relevant to this evaluation (e.g., The American Gas Association), the list was reviewed and only end user specifiers were solicited for the interview. There were 234 names representing 186 companies in the nonparticipant sample frame.

Sample Selection – Each Company was given a random number and called in that order for solicitation in the multi-unit specifier surveys. Each person within the

company was randomly chosen as the first to call for solicitation. Once a person within a company had completed the survey, no other names were called within that company. The final survey instrument, responses to the survey, and call disposition can be found in Appendix E.

4.1.2.6 Hard-to-Reach Cooperatives

The evaluation approach for the FSTC Hard-to-Reach (HTR) effort was agreed upon with the CPUC staff, and was limited to an interview of one FSTC staff person responsible for the program and three interviews with Cooperative organizations that the FSTC used as avenues to the HTR community. The goal of the assessment was to assess ‘the Commercial Food Service Program efforts to include hard-to-reach customers’⁹. By design, the HTR assessment was never intended to measure or document effects of the HTR effort toward market transformation. As a result, this section describes the findings of the HTR assessment in terms of the targeted market sector, descriptions of how the program operated, and HTR assessment findings. Since there is a total of four interviews for this assessment, the analysis is qualitative.

Construction of Frame – In implementing the program, the FSTC defined the HTR customer as less than ten full-time employees, or with an electrical demand of less than 50 kW, or a business that has English as a second language, or a business that leased its property. All of the participants were identified with the help of Cooperatives that specialized in serving the HTR community. There were three cooperatives with which the FSTC had worked on this component of the program. The names and numbers from each cooperative were obtained from the FSTC.

Sample Selection – There was no sample selection as key staff from all three cooperatives were interviewed.

4.1.3 Data Collection

Exhibit 4.7 presents the planned data collection from the Research Plan, the modified plan based on comments on the Research Plan, and the actual number of data points collected during the evaluation effort.

⁹ Final Research Plan, dated April 11, 2003, Section 3.3.5.

Exhibit 4.7
Planned and Actual Data Collected

Data Collection Type	Planned	Actual
FSTC End User Participant Telephone Survey	75	69
CA End User Nonparticipant Telephone Survey	75	76
Kitchen Designer Interviews	12	13
Chain Specifier - Participants	10	10
Chain Specifier - Nonparticipants	10	10
Hard-to-Reach Cooperative Groups	4	4
Manufacturer Interviews	35	35
<i>Cooking</i>	12	12
<i>Refrigeration</i>	12	12
<i>Ventilation</i>	11	11
Total Interviews	221	217
Focus Groups	1	1

The following sections discuss each of the survey and data collection efforts.

4.1.3.1 Telephone Surveys with Participant End Users

Telephone surveys, averaging approximately 19 minutes, were completed with 69 participants. FSTC participants are individuals who participated in an FSTC activity and who influence decisions on equipment purchasing. The questions focused on the impact of the FSTC on attitudes, awareness, and behavior regarding energy efficient kitchen, refrigeration, ventilation, lighting, heating, A/C and water heating equipment and intentions to purchase such equipment. Questions were also asked about perceptions of market barriers.

4.1.3.2 Telephone Surveys with Nonparticipant End Users

Telephone surveys, averaging approximately 19 minutes, were completed with 76 nonparticipant end users in California. Similarly to the participants, the survey questions focused on the nonparticipants' attitudes, awareness, and behavior regarding energy efficient equipment, their intentions to purchase this equipment and their perceptions of certain market barriers.

4.1.3.3 Interviews with Kitchen, Refrigeration, and Ventilation Manufacturers

Interviews, averaging 14 minutes, were completed for 12 cooking manufacturers. The 11 refrigeration manufacturer interviews averaged 13 minutes and the 12 ventilation equipment manufacturer interviews averaged 15 minutes. Senior engineering staff conducted these interviews. Questions focused on awareness and attitudes towards energy efficient equipment and the extent to which the manufacturers recommend these

technologies to their clients. Questions were also asked regarding perceptions of market barriers.

4.1.3.4 Interviews with Kitchen Design Consultants

Interviews, averaging 23 minutes, were completed with 13 kitchen design consultants. Senior engineering staff conducted these interviews. Questions focused on awareness and attitudes towards energy efficient cooking, refrigeration, and ventilation equipment, and the extent to which the consultants recommend these technologies to their clients. Questions were also asked regarding perceptions of market barriers.

4.1.3.5 Interviews with Multi-Unit Specifiers

Interviews, averaging 10 minutes, were completed with 10 participating multi-unit specifiers. The 10 nonparticipating multi-unit interviews averaged 12 minutes. Senior engineering staff conducted these interviews. Questions focused on awareness and attitudes towards energy efficient cooking, refrigeration, and ventilation equipment, and the extent to which the consultants recommend these technologies to their clients. Questions were also asked regarding perceptions of market barriers.

4.1.3.6 Interviews with Participating Cooperative Groups for Hard-to-Reach Population

Interviews averaging approximately 25 minutes were completed with key staff from 3 cooperatives and 1 FSTC member. Senior engineering staff conducted these interviews. Questions focused on the process within the cooperative, process with customers, and perceptions of energy efficiency. The complete, randomized verbatim findings of this assessment are presented in Appendix F.

4.2 Analytical Techniques

As Exhibit 2.1 makes clear, qualitative and quantitative techniques were used in this study. The quantitative technique relied on 'objective' closed-ended questions that could support statistical analyses. However, *qualitative* data can be equally useful. (Britan, 1978; Weiss and Rein, 1972; Patton, 1987). *Qualitative* methods stress in-depth, open-ended interviews, direct observation, and written documents, including open-ended questions and program records. There is wide agreement on the value of using *both* qualitative and quantitative data in the evaluation of many kinds of programs.

Qualitative techniques were used primarily for the analyses of designer, multi-unit specifier, hard-to-reach, and manufacturer data, while statistical techniques were used primarily for the analyses of participant and nonparticipating end user data. Note that all analyses employed both quantitative and qualitative techniques.

The integration of quantitative and qualitative data can be challenging. Such integration often involved exercising judgment in deciding how much weight to give the

quantitative and qualitative data and how to integrate the two in a manner that was internally consistent. This includes identifying coherent and important examples, themes, and patterns in the data. The analyst looks for quotations or observations that go together and are relevant to the customer's decision to install the energy efficient equipment. Guba (1978) calls this process 'convergence,' i.e., the extent to which the data hold together or dovetail in a meaningful way.

The analytic techniques used in comparing the baseline and measuring market effects are described below.

4.2.1 Baseline Comparison

A baseline had been established in many areas in the 1999 Market Effects study. That study identified the current level of market barriers and any market effects possibly attributable to FSTC activities. The results from the data collection during this study were compared to the 1999 study baseline. Comparisons were made between participating and nonparticipating end users, manufacturers, and designers between the two studies. Frequencies, Chi Square, and t tests were used to analyze these data.

4.2.2 Market Effects Measurement

There were a number of methodological issues surrounding the measurement of market effects. These concerned the formation of appropriate comparison groups and analytical approaches.

4.2.2.1 Out-Of-State Comparison Group

In 2003 the evaluation team again explored the possibility of forming an out-of-state comparison group. As with the 1999 study, it was decided that an out-of-state comparison group should not be formed for this study. There are a large number of nonparticipants to choose from within the state of California and using these for a comparison group minimizes differences (e.g., the cost-of-living, alternative programs, etc.) between the participants and nonparticipants in 2003, and also between the nonparticipants from 1999 and 2003.

4.2.2.2 In-State Comparison Group

An in-state group comprised of 76 nonparticipants who had not visited the FSTC center or attended an FTSC presentation was used in the 2003 study for a comparison group. This group was compared against the nonparticipant baseline created as part of the 1999 study to estimate any indirect impacts the FSTC has had on end users. This group was also used as a comparison group to estimate the direct proximate impacts of the FSTC on participants based on the 2003 study. It is believed that the FSTC impacts nonparticipating end users as well as participants, which makes the comparison groups constructed become less useful over time. If this hypothesis is true the differences between the participants and nonparticipants should decrease over time. The 2003 study

analyzes the differences between the 2003 nonparticipants and both the 2003 participants and 1999 nonparticipants for statistical significance.

The comparisons made between the FSTC participants and the nonparticipants need to be carefully analyzed given the structure of the research design. In both 1999 and 2003 data were collected from FSTC participants and nonparticipant end users at the same time so that comparisons between the two study years could occur. One issue that can arise within a study framework such as this is that observed differences may result from certain customer types seeking out the services of the FSTC, and, therefore, their perceptions of various market barriers, etc. may have been different from the nonparticipant perceptions prior to being exposed to information from the FSTC. This bias is referred to as selection bias and efforts taken to mitigate this source of bias are described later.

4.2.2.3 Analytical Approach

This section summarizes the analysis techniques used during the evaluation.

Self Reports – In some cases, the only available data were the responses of a market actor with no other points of comparison. For example, designers were asked the extent to which they ask manufacturers about energy efficient cooking equipment. Because their responses cannot be compared to those of any comparison group, there are no firm conclusions regarding the role of the FSTC in causing designers to make such requests. When possible, self-reported data were compared between market actors to determine if a relationship was apparent. Often the self-reported data were qualitative in nature and there was no ability to determine statistical correlation.

Chi Square – When participant and nonparticipant end user comparisons were possible, chi-square statistics were calculated to determine statistical significance. In certain cases the strength of the relationship was also reported based on the value of the contingency coefficient. In most cases a 95% confidence level was used; however, in some cases the confidence level was relaxed to 90% due to differences that existed between the populations being compared. When 90% confidence levels were used it has been noted in the analysis. Additional attempts to control for group differences using regression techniques are described below.

Regression Analysis – For most data, chi-square statistics were calculated to determine if the observed differences between two populations were statistically significant. However, selection bias can be a potential problem since the two groups differ on a number of key variables. These variables include attributes such as the number of full-time employees, self reported business size, number of other sites in California, style of service, etc. These differences may affect their attitudes, knowledge, awareness, and behaviors. To control statistically for these observed differences, regression models were used to estimate market effects that included the attributes listed above as independent variables.

Section 5

Results of Analysis

This section provides the results of all the analyses of the various market actors. A comparison to the previous market effects study is prevalent throughout the results.

5.1 Baseline Comparison

The market actor surveys conducted in 2003 can be compared to the baseline constructed as part of the 1999 FSTC evaluation. These comparisons illustrate the similarities and differences that exist between groups in 1999 and 2003. The comparisons have been conducted for three main categories: sample description (firmographics), the relationship between FSTC activities and market effects (linkages), and perceived market barriers.

5.1.1 Participant End Users

5.1.1.1 Firmographics

This section compares basic information about the restaurants contacted in the 2003 participant survey to those contacted in the 1999 participant survey. For the comparison, the restaurants were categorized by style of service, ownership status, size and attitudes. Size was defined in three ways: by revenue compared to similar sites (self-reported), by the number of full-time employees and by the number of other sites in California. Attitudes towards primary business concerns and energy efficiency are also included in this section since they help define a basic understanding of these restaurants. One should keep the differences in characteristics between the FSTC participants in 2003 and 1999 in mind when reviewing changes in attitudes, linkages and market barriers. Exhibit 5.1 through Exhibit 5.9 display the comparisons.

Exhibit 5.1
Participants' Style of Service

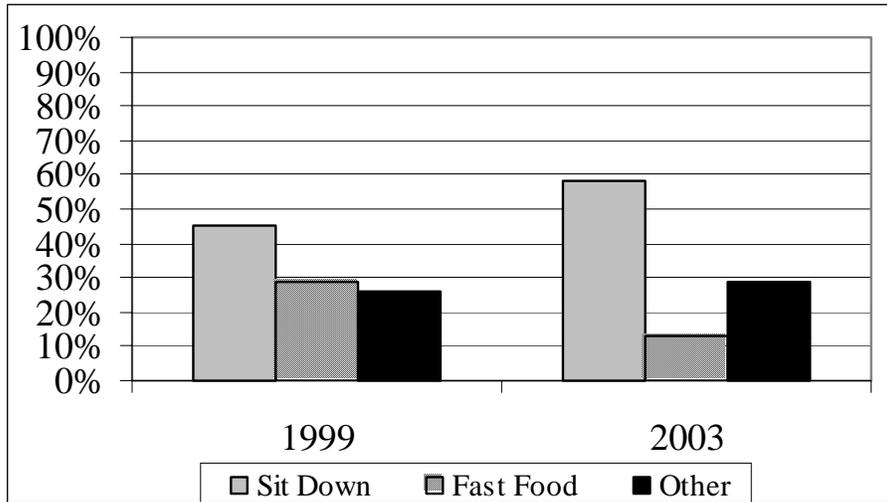


Exhibit 5.1 shows that in 2003 there were more full-service sit-down restaurants included in the participant study than there had been in 1999 (58% versus 45%, respectively), although statistical analysis found that this difference was not significant. In 2003 approximately 29% of FSTC participants classified themselves as 'Other', as opposed to sit-down or fast food restaurants. Among those who classified themselves as 'Other', 90% said they were institutional food service and the other 10% said they were grocery stores.

Exhibit 5.2
Participants' Ownership Status

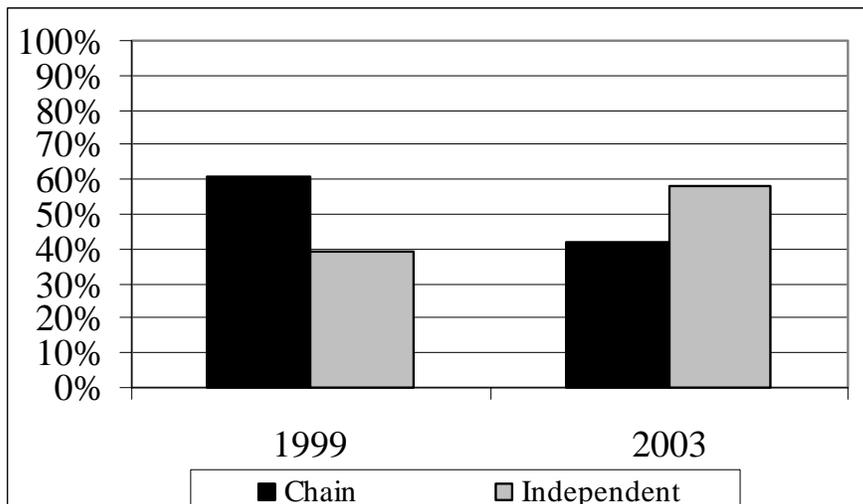
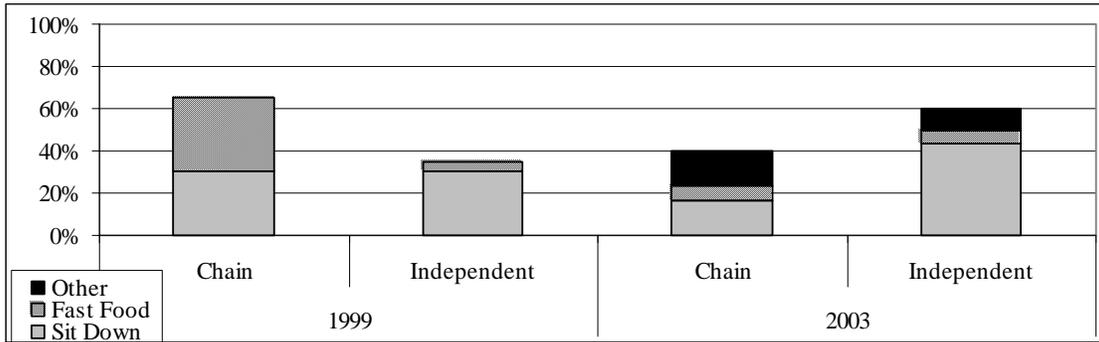


Exhibit 5.2 shows there has been an increase in percentage of independent restaurants attending FSTC activities since 1999. This increase is statistically significant at the 90% level.

Exhibit 5.3
Participants' Service Style by Ownership Status



From Exhibit 5.3 one can see that the percentage of chain fast food restaurants attending FSTC activities decreased in the 2003 study sample. The differences seen between 1999 and 2003 with respect to the four combinations of ownership and service style are significant at the 95% level.

Exhibit 5.4
Participants' Self Reported Size of Restaurant (based on revenue)

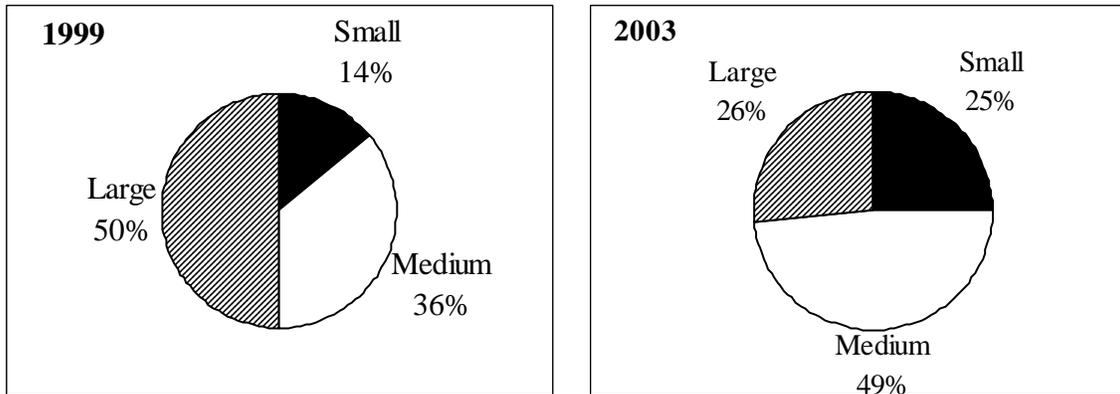


Exhibit 5.4 illustrates an important difference between the 1999 and 2003 FSTC participants. In 1999 nearly twice as many of those surveyed classified themselves as large in terms of revenue compared to other sites like theirs. This difference is statistically significant and was found to be responsible for many of the changes seen between the participants in 1999 and 2003 that will be discussed later in this report. This change shows that, in 2003, the FSTC was doing a better job of reaching a wider, more diverse audience that includes smaller independent restaurants in addition to large chains.

Another important distinction between the FSTC participant respondents in 1999 and 2003 is the sample collection and contact methodology. In 1999 the FSTC did not have a comprehensive database from which to choose the participant sample. As a result, only 98 restaurants were in the starting participant sample. This small sample made it difficult to get an adequate number of completed surveys. In an effort to increase the number of completes, a number of the participants were contacted by an FSTC

representative prior to the phone survey to encourage them to participate in the study. In 2003 this situation was much improved since the FSTC, based on a recommendation from the 1999 study, had created a database of seminar participants as the seminars occurred, thus making the participant sample selection process easier and cleaner because of the larger population of names.

**Exhibit 5.5
Number of Full-time Employees for Participants**

Number of Employees	Participants			
	1999		2003	
	#	Percentage	#	Percentage
0	7	19%	1	1%
1	2	6%	6	9%
2 to 10	6	17%	12	17%
11 to 25	6	17%	19	28%
25+	15	42%	31	45%
Total	36	100%	69	100%

Exhibit 5.5 shows that the number of full-time employees working at the restaurants in the participant sample increased slightly in 2003 with fewer restaurants having no additional full-time employees (besides the individual surveyed) and more restaurants having 11 or more employees. This shift was statistically significant at the 95% level.

**Exhibit 5.6
Number of Other Sites in California for Participants**

Number of Sites	Participants			
	1999		2003	
	#	Percentage	#	Percentage
0	11	31%	20	29%
1	0	0%	12	18%
2 to 10	6	17%	15	22%
11 to 50	13	36%	11	16%
50+	6	17%	10	15%
Total	36	100%	68	100%

Exhibit 5.6 shows that in 2003 there are more restaurants that have 10 or fewer locations. This shift in the distribution of the number of sites was statistically significant at the 95% level (p-value =0.0287). This shift supports the findings from Exhibit 5.2, which showed fewer chains and more independent restaurants in 2003.

Exhibit 5.7
Information Acquired at the FSTC

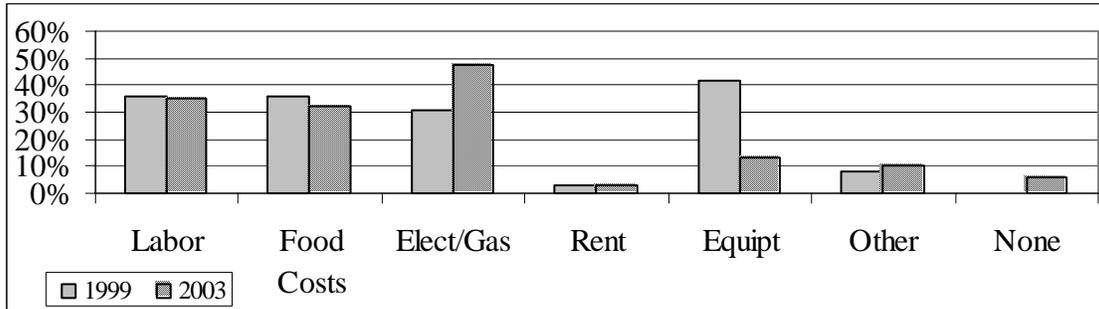
Course Content	1999	2003
Cooking	81%	83%
Ventilation	69%	68%
Refrigeration	58%	74%
Lighting	0%	70%
Heating/AC	0%	62%
Water Heating	0%	52%
Other	6%	4%

Exhibit 5.7 shows that the amount of emphasis on courses relating to cooking and ventilation equipment seems to be very similar in 2003 to what it was in 1999. In 2003 participants reported an increase in the amount of information they received on Refrigeration, Lighting, Heating/AC and Water Heating. Although Lighting, Heating/AC and Water Heating were not separate response categories on the survey in 1999 (which explains why they all equal zero in 1999), the significant increase in these end uses is evident by the small number of ‘Other’ responses in 1999.

Primary Business Concerns and Attitudes Toward Energy Efficiency

Changes in participants’ attitudes toward primary business concerns and energy efficiency between 1999 and 2003 are also of interest since they may help explain changes in behaviors.

Exhibit 5.8
Greatest Opportunities for Reducing Food Service Operating Costs for Participants



In 2003, FSTC participants view gas/electricity as the most significant area in which there is room to reduce their operating costs. In 1999 gas/electricity lagged slightly behind labor and food costs as the top opportunities for cost reduction; however, in 2003 it was the only one of the three to increase. It is interesting to note that at the same time the gas/electricity area was increasingly seen as a greater opportunity to reduce costs, the equipment purchases area was going in the reverse direction. The increase in gas/electricity is mostly likely closely tied to the energy crisis that occurred since the 1999 study was conducted.

Attitudes Toward Energy Efficiency

To determine the impact the FSTC has had on attitudes towards energy efficiency, participants were asked to rank, on a scale of 1 to 10, a series of five statements regarding the importance of energy efficiency and conservation to their company. The mean score and 95% confidence intervals for the attitude statements are presented in Exhibit 5.9 below. Additionally, test results indicating whether the observed differences in the means were statistically significant are included in the exhibit.

**Exhibit 5.9
Participants’ Attitudes Toward Energy Efficiency**

Attitudes Toward Energy Efficiency	2003				95% Level Significantly Different
	Participants		Nonparticipants		
	MEAN	95% CL (+/-)	MEAN	95% CL (+/-)	
Improving EE to Reduce Operating Costs	8.74	0.39	8.32	0.47	No
Improving EE to Protect the environment	7.93	0.52	7.84	0.59	No
Energy concerns compared to others concerns	7.13	0.49	7.45	0.50	No
Recycling more to reduce costs	7.03	0.67	6.88	0.69	No
Recycling more to protect environment	7.71	0.59	7.42	0.64	No
Average of all Above	7.71	0.34	7.60	0.39	No

From Exhibit 5.9 one can see that participants have slightly increased their attitudes regarding the importance of energy efficiency and the environment; however, this increase was only found to be statistically significant for one of the five statements.

A further comparison of these attitudes between 2003 participants and 2003 nonparticipants is conducted in Section 5.1.1.2

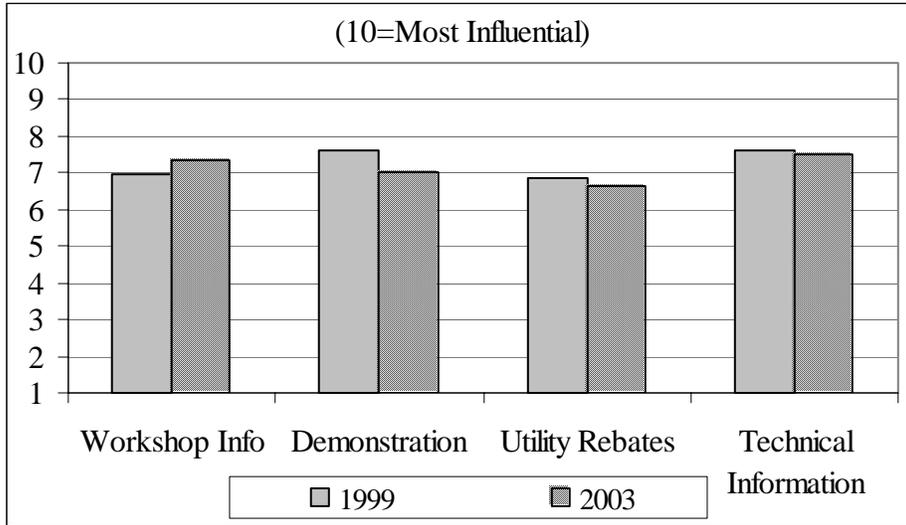
5.1.1.2 Participant Linkages

Participants are directly involved in many of the 23 linkages. This section presents significant results related to the linkages in cases where the linkage was not fully analyzed as part of one of the hypotheses. Linkages that are covered as part of a hypothesis in Section 5.2 are noted below.

Linkage #1: Workshops, seminars, and demonstrations conducted by the FSTC may increase awareness and knowledge of energy efficient equipment. As a result, it is expected that participants will have a more positive attitude toward energy efficient equipment.

This linkage is covered in detail later in this report under Hypothesis 1, Section 5.2.1

Exhibit 5.10
Factors Influencing Design or Technology Decisions Used in Recent Construction or Renovation Projects



There were no significant changes in the factors influencing participants’ design or technology decisions between 1999 and 2003. From Exhibit 5.10, however, one can see that in both years participants found information to be slightly more influential than utility rebates. Participants found information (workshops, technical information, etc.) to be more influential than rebates, while nonparticipants found rebates to be more influential than any kind of information. This difference between the importance of rebates to participants versus nonparticipants was statistically significant.

Linkage #2: *Participants may perceive certain market barriers to be reduced. For example, their concerns regarding performance uncertainty may be lessened.*

This linkage is covered in detail in Hypothesis 2, Market Barriers, Section 5.2.2.

Linkage #3: *Participants may purchase or plan to purchase energy efficient equipment.*

A series of new attitude questions were added to the survey instrument in 2003. One of the new questions asked both participants and nonparticipants about the importance of energy efficiency when selecting food service equipment. Exhibit 5.11 shows that the responses to this question were nearly identical for participants and nonparticipants, with the only difference being that all participants found it to be important on some level versus 5% of the nonparticipants who claimed it was not important at all. This mild difference was not found to be statistically significant using a chi-squared statistic.

Exhibit 5.11

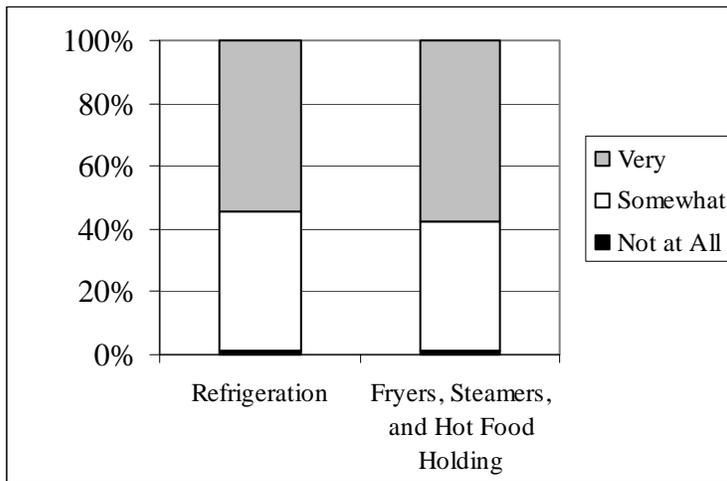
Importance of Energy Efficiency When Selecting Food Service Equipment

	Participants	Nonparticipants
Very Important	63.2%	62.2%
Somewhat Important	36.8%	32.4%
Not at All Important	0.0%	5.4%
Don't Know	1.5%	2.7%

Two additional new questions were asked of FSTC participants regarding the importance of Energy Star labels when considering new equipment. All participants except one responded that the label was important for refrigeration equipment (54% saying very important and 44% saying somewhat important) and would be for fryers, steamers and hot food holding equipment if available (57% saying very important and 41% saying somewhat important). These results are presented in Exhibit 5.12 and illustrate the importance of the work the FSTC has been doing to create and promote these labels.

Exhibit 5.12

Importance of Energy Star Labels for Participants When Considering New Equipment



Link #7: *Increased awareness and knowledge of energy efficient equipment may result in participants seeking more information from manufacturers and kitchen designers regarding performance, cost, durability, etc.*

This linkage is covered in detail in Hypothesis 3, Section 5.2.3.

Link #8: *Participants may interact with nonparticipating end users and, as a result, affect those end users' awareness, knowledge, and attitudes toward energy efficient equipment.*

This linkage is covered in detail in Hypothesis 3, Section 5.2.3.

Link #9: *Reduction in market barriers is expected to result in participants seeking more information from manufacturers and kitchen designers regarding performance, cost, durability, etc.*

This linkage is covered in detail in Hypothesis 3, Section 5.2.3.

Link #10: *Reduction in market barriers is expected to result in participants conveying to nonparticipating end users their confidence in the performance capabilities of energy efficient equipment.*

This linkage is covered in detail in Hypothesis 3, Section 5.2.3.

Link #11: *Changes in participants, and their interactions with nonparticipating end users, may affect nonparticipating purchase decisions.*

This linkage is covered in detail in Hypothesis 3, Section 5.2.3.

Link #12: *Participant openness to the purchase of energy efficient equipment may result in participants demanding a variety of data such as equipment performance data or demanding that certain equipment meet certain performance standards.*

This linkage is covered in detail in Hypothesis 3, Section 5.2.3.

Link #15: *As a result of their FSTC experience, participants may be more aware of the ASTM and the standard testing methods.*

Two questions were asked in 1999 and again in 2003 to gauge participant and nonparticipant awareness of the ASTM and Standard Test methods. The participant results for 1999 and 2003 are presented in the exhibit below.

Exhibit 5.13

Participant Awareness of the ASTM and ASTM Test Methods

	1999	2003
Percentage of participants who had heard of the ASTM	66.7%	46.4%
Percentage of participants who were aware of ASTM test methods	75.0%	60.9%
Percentage of end users who were aware who have asked how equipment scored on tests	44.4%	35.7%

From Exhibit 5.13 one can see that in 2003 fewer individuals have both heard of the ASTM and are aware of the Standard Test methods. In 1999 and 2003 the majority of participants reported hearing of the ASTM through publications; however, in 2003 the percentage of total participants who have heard of the ASTM through publications has dropped by roughly one-third. This may be the result of the decline in the percentage of FSTC participants who are receiving the *Foodservice Equipment reports* magazine from 65% in 1999 to 34% in 2003.

Of those who had heard of the ASTM, the data showed a drop in hearing of it through publications, utilities, dealers and ‘Other’ sources. In 2003, however, the percentage of participants who reported hearing of the ASTM through the FSTC rose from 6% to 22%. This difference was statistically significant at the 95% level. These results indicate that the drop in overall awareness of the ASTM and its test methods is less related to the courses taught at the FSTC and more a function of fewer people receiving

publications (such as *Foodservice Equipment reports*) or information from other areas of the industry since 1999, and could be associated with the smaller size of the participating companies in 2003.

5.1.1.3 Participant Barriers

One goal of the 2003 evaluation was to determine if there have been any changes in FSTC participants' perception of market barriers between 1999 and 2003. Five potential market barriers were identified and evaluated in 1999. In 2003, it was possible to compare responses to the market barrier questions to determine if any changes have occurred. This section focuses on the market barriers with respect to the FSTC participants in 1999 versus 2003. When reviewing this section it is important to keep in mind the differences in the sample selection and contact strategies between 1999 and 2003. In 1999 the sample was drawn from a small pool of participants who had a great deal of contact with the FSTC. Additionally, many of the respondents were contacted by the center and encouraged to respond due to difficulties getting a population of participants large enough to analyze. As a result, one should not be alarmed by some of the increases seen in the perceptions of market barrier in 2003. Section 5.1.2.3 evaluates market barrier perceptions among nonparticipants in 1999 and 2003 in a similar manner.

For cooking, refrigeration and ventilation end uses, survey respondents were asked to rank a series of statements representing possible market barriers on a scale of 1 to 10, where a 10 represented 'strongly agree' and a 1 represented 'strongly disagree'. In order to make a consistent comparison the same questions and methods were used in both the 1999 and 2003 surveys.

The first potential market barrier to be evaluated was Organizational Practices. The assumption behind this market barrier is that organizational behaviors may exist within an individual restaurant or a restaurant corporation that inhibit cost effective energy efficiency. Seven questions were asked in order to measure this market barrier. Exhibit 5.14 presents the means and 95% confidence intervals for these seven questions along with the average across all seven of the questions. These statistics are provided for the 1999 and 2003 results and the differences in the means for the two years were evaluated using a chi-squared statistic to determine if they are statistically significant. The mean score of the third statement has been reversed so that it is consistent with the other statements where the higher the mean the more substantial the barrier.

Exhibit 5.14
Organizational Practices as a Market Barrier for Participants, 1999 versus 2003

Market Barrier: Organizational Practices	1999		2003		Significantly Different at 95%
	MEAN	95% CL (+/-)	MEAN	95% CL (+/-)	
Our practice is not to worry about equipment unless it breaks down.	2.83	0.73	4.17	0.80	No*
When we select equipment, the most important consideration is immediate delivery	4.06	0.74	4.68	0.74	No
Our company includes the long run operating and maintenance costs of equipment in its initial calculations	3.92	0.76	4.12	0.66	No
When we select our equipment, the most important issue is its initial cost.	5.42	0.74	5.65	0.73	No
The most important operational issue for our company is keeping our foodservice costs under control.	8.03	0.66	7.57	0.64	No
Investing extra money in energy efficient equipment would reduce our ability to take advantage of other investment opportunities.	3.06	0.83	5.09	0.77	Yes
I don't see any reason to be proactive with regard to energy efficiency in today's economy.	2.00	0.59	3.19	0.79	No
Average for Organizational Practices	4.21	0.33	4.94	0.41	Yes

* Significantly Different at the 90% level

The participants' overall perceptions of Organizational Practice as a market barrier have increased at a significant level since 1999. This increase seems mostly related to the perception in 2003 that there is only a limited amount of money available, and thus, if extra money is spent on energy efficient equipment less is available for other investments. In 2003 there were also more restaurants indicating that their company does not worry about equipment until it breaks down. Two other explanations for the apparent trend are (1) the economy is significantly tighter in 2003 than it was in 1999, and (2) the average size of the participant interviewed in 2003 was smaller than in 1999, and generally smaller restaurants are shorter on capital than larger ones.

The second potential market barrier evaluated was Split or Misplaced Incentives. The theory behind this market barrier is that certain food service providers may not be inclined to switch to energy efficient equipment since the individual who is responsible for deciding on new equipment is different from the individual who would benefit from the switch to a more energy efficient product. Exhibit 5.15 compares FSTC participants' attitudes regarding Split/Misplaced Incentives from the 1999 study to those from the 2003 study.

Exhibit 5.15
Split/Misplaced Incentives as a Market Barrier for Participants, 1999 versus 2003

Market Barrier: Split/Misplaced Incentives	1999		2003		Significantly Different at 95%
	MEAN	95% CL (+/-)	MEAN	95% CL (+/-)	
The operational costs savings from installing energy efficient equipment would not flow into my department's budget.	3.83	1.16	4.67	0.83	No
The people who have to make the investments in energy for our company are not the same ones who would see the benefits in lower operating costs.	3.56	1.02	4.06	0.70	No
Average for Split/Misplaced Incentives	3.90	0.87	4.43	0.55	No

Despite the small (non-significant) increase in means for both Split/Misplaced Incentive statements in 2003, this market barrier is still perceived by FSTC participants to be the lowest (i.e., least important) of all the market barriers.

The next market barrier evaluated is Performance Uncertainty. Performance Uncertainty may keep individuals from switching to energy efficient equipment because they have difficulty evaluating the benefits of and claims about this equipment. The tables presented in Exhibit 5.16 compare attitudes regarding Performance Uncertainty in 1999 to those in 2003 with respect to cooking, refrigeration and ventilation end uses.

Exhibit 5.16
Performance Uncertainty by End Use as a Market Barrier for Participants, 1999 versus 2003

Market Barrier: Performance Uncertainty for Cooking	1999		2003		Significantly Different at 95%
	MEAN	95% CL (+/-)	MEAN	95% CL (+/-)	
When we select cooking equipment, the most important thing we look for is reliability of operation	7.92	0.68	7.79	0.62	No
The return on investment from energy efficient cooking equipment is difficult to estimate	4.86	0.96	5.81	0.76	No
Our company is unwilling to take the risks involved in the use of high efficiency cooking equipment.	2.86	0.74	2.88	0.60	No

Market Barrier: Performance Uncertainty for Refrigeration	1999		2003		Significantly Different at 95%
	MEAN	95% CL (+/-)	MEAN	95% CL (+/-)	
When we select refrigeration equipment, the most important thing we look for is reliability of operation	7.83	0.65	8.10	0.58	No
The return on investment from energy efficient refrigeration equipment is difficult to estimate	4.44	0.91	5.91	0.74	Yes
Our company is unwilling to take the risks involved in the use of high efficiency refrigeration equipment.	2.92	0.71	3.09	0.66	No

Market Barrier: Performance Uncertainty for Ventilation	1999		2003		Significantly Different at 95%
	MEAN	95% CL (+/-)	MEAN	95% CL (+/-)	
When we select ventilation equipment, the most important thing we look for is reliability of operation	7.67	0.71	7.80	0.60	No
The return on investment from energy efficient ventilation equipment is difficult to estimate	5.31	1.04	6.13	0.72	No
Our company is unwilling to take the risks involved in the use of high efficiency ventilation equipment.	2.83	0.65	2.98	0.62	No

Market Barrier: Performance Uncertainty	1999		2003		Significantly Different at 95%
	MEAN	95% CL (+/-)	MEAN	95% CL (+/-)	
Average for Performance Uncertainty (All End Uses)	5.24	0.50	5.69	0.38	No

One can see from Exhibit 5.16 that there has been very little change between 1999 and 2003 in the views FSTC participants have of Performance Uncertainty as a market barrier. The mean score of the first statement for each end use has been reversed so that the score is consistent with the other statements (the higher the mean score the more substantial the barrier). Despite small increases for most of the scores in 2003, only one of the increases was actually statistically significant (‘The return on investment from

energy efficient refrigeration equipment is difficult to estimate’ was significant at the 95% level). The mean score for all of the statements across all of the end uses was also evaluated to determine if it had significantly changed between 1999 and 2003, and the chi-squared statistic showed it had not.

The Information Search Costs market barrier refers to individuals who are kept from using energy efficient equipment because the cost of learning about energy efficient products or services is too high. The tables presented in Exhibit 5.17 evaluate participants’ beliefs regarding Information Search Costs as a market barrier for the cooking, refrigeration and ventilation end uses.

**Exhibit 5.17
Information Search Costs as a Market Barrier for Participants, 1999 versus 2003**

Market Barrier: Information Search Costs for Cooking	1999		2003		Significantly Different at 95%
	MEAN	95% CL (+/-)	MEAN	95% CL (+/-)	
Our company has the expertise to evaluate our equipment	4.67	0.87	5.15	0.75	No
It’s hard to figure out which cooking equipment to buy because of all of the technical information you have to find	5.25	0.84	5.06	0.72	No
It’s hard to get a handle on the benefits of energy efficient equipment without a detailed written analysis	7.19	0.80	6.51	0.69	No

Market Barrier: Information Search Costs for Refrigeration	1999		2003		Significantly Different at 95%
	MEAN	95% CL (+/-)	MEAN	95% CL (+/-)	
Our company has the expertise to evaluate our equipment	4.47	0.89	4.88	0.74	No
It’s hard to figure out which refrigeration equipment to buy because of all of the technical information you have to find	5.36	0.87	5.40	0.71	No
It’s hard to get a handle on the benefits of energy efficient equipment without a detailed written analysis	7.00	0.79	6.52	0.65	No

Market Barrier: Information Search Costs for Ventilation	1999		2003		Significantly Different at 95%
	MEAN	95% CL (+/-)	MEAN	95% CL (+/-)	
Our company has the expertise to evaluate our equipment	5.31	1.01	5.19	0.77	No
It’s hard to figure out which ventilation equipment to buy because of all of the technical information you have to find	5.83	0.94	5.33	0.75	No
It’s hard to get a handle on the benefits of energy efficient equipment without a detailed written analysis	7.28	0.76	6.80	0.67	No

Market Barrier: Information Search Costs	1999		2003		Significantly Different at 95%
	MEAN	95% CL (+/-)	MEAN	95% CL (+/-)	
Average for Information Search Costs (All End Uses)	5.84	0.57	5.66	0.46	No

Exhibit 5.17 shows that there has been a slight decline in participants’ perceptions of Information Search Costs as a market barrier since 1999. However, this decrease was not significant for any of the individual statements or end uses or the average across Information Search costs in its entirety.

The final market barrier to be evaluated is Asymmetric Information. Asymmetric Information occurs when one party (namely the dealer or salesperson) has more information on energy efficient products and thus the food service operator feels like he or she is being taken advantage of.

**Exhibit 5.18
Asymmetric Information as a Market Barrier by End Use for Participants, 1999
versus 2003**

Market Barrier: Asymmetric Information for Cooking	1999		2003		Significantly Different at 95%
	MEAN	95% CL (+/-)	MEAN	95% CL (+/-)	
Cooking equipment sales people usually just try to push whatever manufacturer they're closest to	6.25	0.89	7.30	0.64	Yes
Cooking equipment dealers and representatives use the desire for high efficiency equipment by customers like us to charge more than it is really worth	5.08	0.86	5.59	0.74	No
I think much of what salesmen tell us about performance of high efficiency cooking equipment is exaggerated	5.33	0.77	5.48	0.70	No

Market Barrier: Asymmetric Information for Refrigeration	1999		2003		Significantly Different at 95%
	MEAN	95% CL (+/-)	MEAN	95% CL (+/-)	
Refrigeration equipment sales people usually just try to push whatever manufacturer they're closest to	6.17	0.89	7.27	0.59	Yes
Refrigeration equipment dealers and representatives use the desire for high efficiency equipment by customers like us to charge more than it is really worth	4.89	0.72	5.76	0.70	No
I think much of what salesmen tell us about performance of high efficiency refrigeration equipment is exaggerated	5.17	0.83	5.33	0.69	No

Market Barrier: Asymmetric Information for Ventilation	1999		2003		Significantly Different at 95%
	MEAN	95% CL (+/-)	MEAN	95% CL (+/-)	
Ventilation equipment sales people usually just try to push whatever manufacturer they're closest to	5.86	1.01	7.10	0.64	Yes
Ventilation equipment dealers and representatives use the desire for high efficiency equipment by customers like us to charge more than it is really worth	5.14	0.88	5.67	0.73	No
I think much of what salesmen tell us about performance of high efficiency ventilation equipment is exaggerated	5.44	0.81	5.37	0.70	No

Market Barrier: Asymmetric Information	1999		2003		Significantly Different at 95%
	MEAN	95% CL (+/-)	MEAN	95% CL (+/-)	
Average for Asymmetric Information (All End Uses)	5.85	0.49	6.13	0.50	No

Exhibit 5.18 illustrates that in 2003, for all types of equipment, FSTC participants are more likely to believe that salespeople usually push equipment from whichever manufacturer they are closest to.

Overall, the findings presented above illustrate that, in general, participants' attitudes toward market barriers have changed very little between 1999 and 2003. The significant changes that did occur all pointed toward FSTC participants perceiving higher market barriers in 2003. However, as stated previously, these shifts can be attributed to changes in the makeup of the participant sample population.

In 2003 a question was asked to determine what the biggest market barriers were for participants and also to see if any additional market barriers had arisen since 1999. The responses to this question are presented in Exhibit 5.19 below.

Exhibit 5.19
New Market Barriers for Participants, 2003

New Market Barriers	Participants	
Cost	45	66%
Performance Uncertainty	27	40%
Size/Fit	8	12%
Availability	6	9%
Organizational Practices	2	3%
Knowledge	2	3%
Need	2	3%
Energy Conservation	1	1%

One can see from this exhibit that Cost is the largest market barrier for participants, followed by Performance Uncertainty, which was previously analyzed. For the most part all of the market barriers listed above have either already been included in the market barrier analysis or have not been included since they are items that the FSTC has little influence over (such as Cost, Size/Fit). The exception to this was Availability, which the FSTC can affect; however, since there were only six responders that listed this as a barrier, a full analysis was not done on Availability at this time.

5.1.2 Nonparticipant End Users

This section compares basic information about the restaurants in the 1999 and 2003 nonparticipant samples. The restaurants included in both of these samples were selected to be representative of the entire population of California restaurants.

5.1.2.1 Firmographics

The comparisons for the nonparticipant restaurants were done using the same categories as the participant sample: by style of service, ownership status, size, business concerns and attitudes. This information is presented in Exhibit 5.20 through Exhibit 5.27.

Exhibit 5.20
Nonparticipant Style of Service

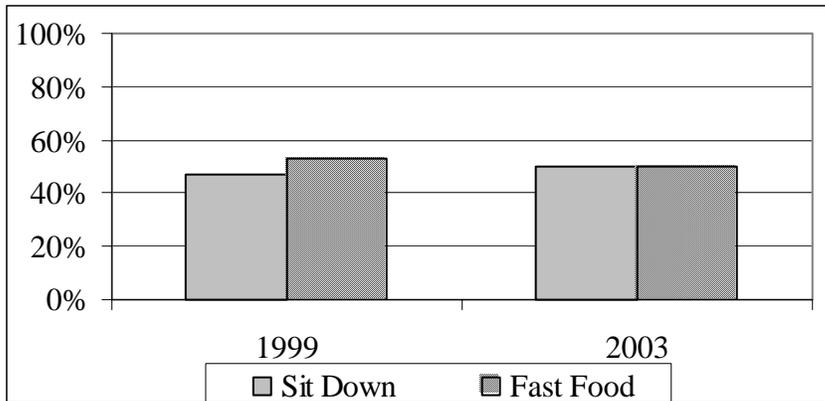


Exhibit 5.21
Nonparticipant Ownership Status

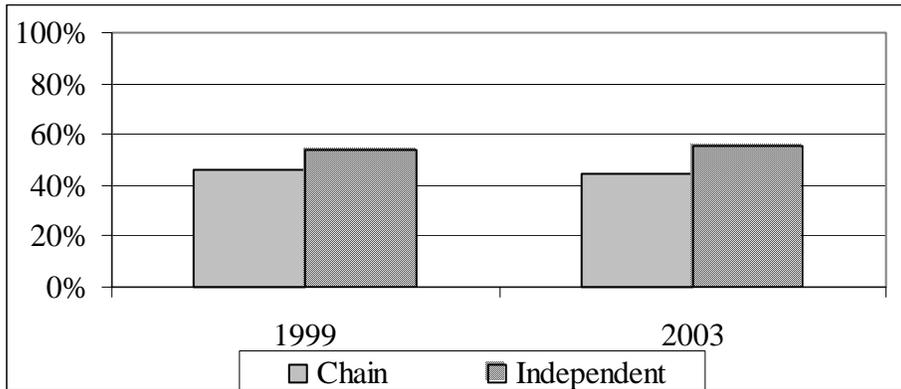


Exhibit 5.22
Nonparticipant Service Style by Ownership Status

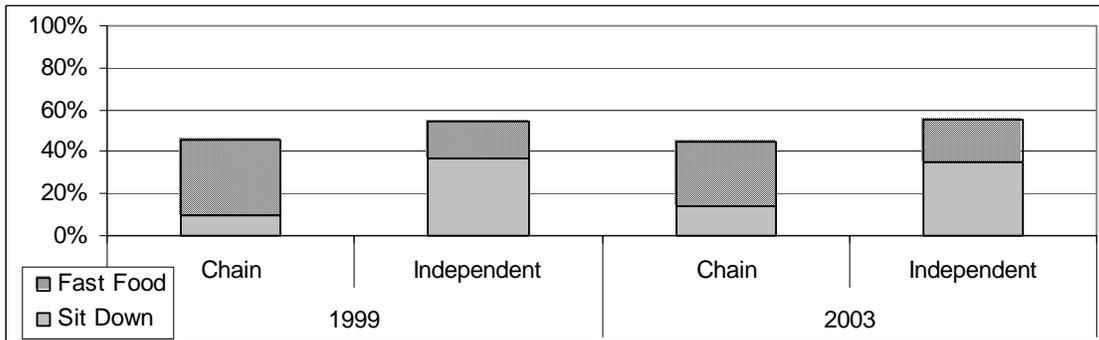


Exhibit 5.20 through Exhibit 5.22 show that there was very little change for nonparticipants between 1999 and 2003 with respect to ownership status or style of service. This is important since it means the make up of this population has changed very little since the baseline was initially created in 1999, and thus the comparison made between nonparticipants in 1999 and 2003 can be analyzed directly without having to account for major differences in the two populations.

Exhibit 5.23
Nonparticipant Self-Reported Restaurant Size Compared to Similar Sites

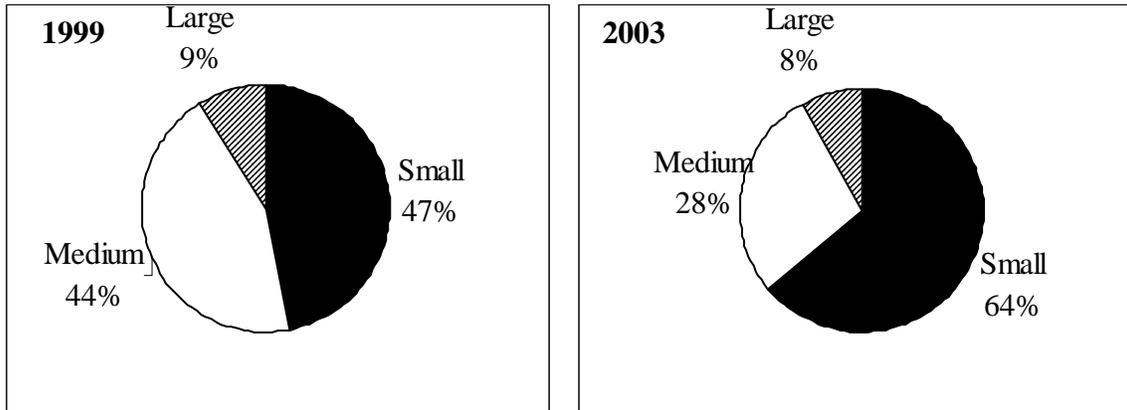


Exhibit 5.23 shows that in 2003 nonparticipants were more likely to classify themselves as small in terms of revenue as compared to other sites like theirs; however, there was very little change in the percentage that classified themselves as large. A chi-square statistic showed the difference in size (small/medium/large) for nonparticipants was statistically significant at the 90% level ($p=0.0712$). To quantify the effect of this change in size, dummy variables were created to represent small, medium and large size businesses. These dummy variables were included as independent variables in the regression models run on these populations, so that if this shift were responsible for any changes between the 1999 and 2003 nonparticipant populations, the dummy variables would identify this as significant. The results that follow show that this shift had very little impact, which indicates that there is little difference between groups that classified themselves as small and medium.

Exhibit 5.24 shows that the number of full-time employees (in addition to the individual being interviewed) in the nonparticipant population has shifted down slightly between 1999 and 2003. In 2003 there are more restaurants with no additional employees, which was exactly opposite of the shift observed between the participant populations. This may signify that California restaurants are shifting to smaller operations with less full-time help, possibly making it more difficult to find time for training classes at places such as the FSTC. This shift was statistically significant at the 95% level.

Exhibit 5.24
Number of Full-Time Employees for Nonparticipants

Number of Employees	1999		2003	
	#	Percentage	#	Percentage
0	3	3%	17	23%
1	30	30%	18	24%
2 to 10	33	33%	22	30%
11 to 25	21	21%	11	15%
25+	13	13%	6	8%
Total	100	100%	74	100%

Exhibit 5.25
Number of Other Sites in California for Nonparticipants

Number of Sites	1999		2003	
	#	Percentage	#	Percentage
0	38	38%	32	42%
1	29	29%	19	25%
2 to 10	21	21%	12	16%
11 to 50	3	3%	9	12%
50+	9	9%	4	5%
Total	100	100%	76	100%

Exhibit 5.25 shows that between 1999 and 2003 there has been very little shift in the number of other sites for California restaurants.

Primary Business Concerns and Attitudes Toward Energy Efficiency

Changes in end user nonparticipants' attitudes toward primary business concerns and energy efficiency between 1999 and 2003 are of interest since they can help explain changes in the behavior of the end users.

Exhibit 5.26
Greatest Opportunities for Reducing Food Service Operating Costs for Nonparticipants

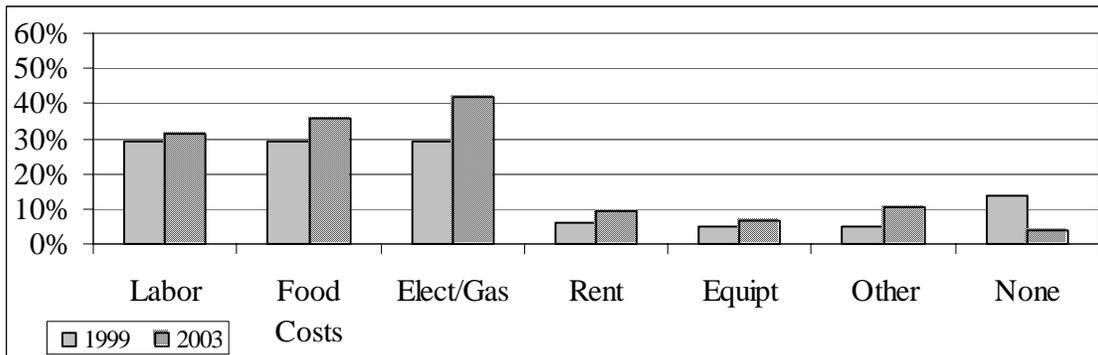


Exhibit 5.26 shows there have been minor increases in all areas that nonparticipants view as opportunities to reduce their operating costs. The biggest increase in magnitude was for electricity and gas (13% increase), which agreed with participant perceptions, as discussed previously. However, the largest percentage change was for rent, which increased 50% from 6% to 9%. End users’ beliefs regarding equipment purchases as an opportunity to reduce costs changed very little between 1999 and 2003, unlike the beliefs of the FSTC participants. Despite participants’ seeing equipment purchases as much less of an opportunity than in 1999, and nonparticipants seeing it as slightly more of an opportunity than in 1999, in absolute terms in 2003, nonparticipants continue to rank it as less of an opportunity than the participants.

Attitudes Toward Energy Efficiency

To determine whether there has been a shift in the attitudes of nonparticipants in California regarding topics such as the importance of energy efficiency and conservation to their food service establishment, an analysis was conducted on a series of attitude statements. These statements were asked in 1999 and again in 2003, and each time the nonparticipants were asked to rank their significance on a scale of 1 to 10. The mean score and 95% confidence intervals for the attitude statements are presented in Exhibit 5.27. The results of the tests for statistical significance differences in the means from 1999 to 2003 are also presented in the exhibit.

**Exhibit 5.27
Nonparticipant Attitudes Toward Energy Efficiency**

Attitudes Toward Energy Efficiency	Nonparticipants				95% Level Significantly Different
	1999		2003		
	MEAN	95% CL (+/-)	MEAN	95% CL (+/-)	
Improving EE to Reduce Operating Costs	8.67	0.37	8.32	0.47	No
Improving EE to Protect the environment	7.99	0.47	7.84	0.59	No
Energy concerns compared to others concerns	6.80	0.51	7.45	0.50	No
Recycling more to reduce costs	7.40	0.56	6.88	0.69	No
Recycling more to protect environment	7.71	0.51	7.42	0.64	No
Average of all Above	7.73	0.35	7.60	0.39	No

Exhibit 5.27 illustrates that nonparticipants’ overall attitude regarding the importance of energy efficiency and the environment has dropped slightly from 1999 to 2003. The only increase seen in 2003 was for the statement ‘Energy concerns compared to other concerns’. This increase may be closely related to the 2001 energy crisis when these nonparticipants most likely experienced significant increases in their electrical bills. None of the changes seen in Exhibit 5.27 were large enough to be significant at the 95% or 90% level.

5.1.2.2 Nonparticipant Linkages

Nonparticipants are directly involved in 7 of the 21 linkages (#8, 10, 11, 16, 17, 18 and 20). This section presents the data related to each of the linkages where significant effects were found and where they are not covered by one of the later hypotheses.

Linkage #8: *Participants may interact with nonparticipating end users and, as a result, affect those end users' awareness, knowledge, and attitudes toward energy efficient equipment.*

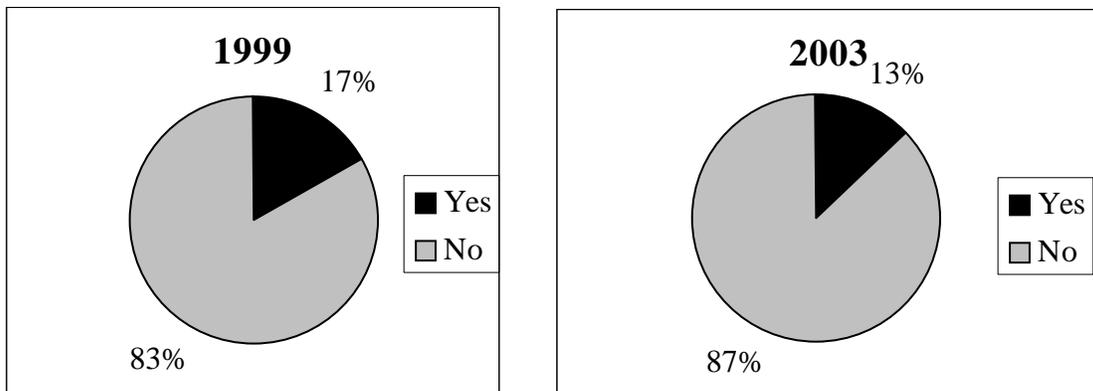
This linkage is covered in detail in Linkage 11 below.

Linkage #10: *Reduction in market barriers is expected to result in participants conveying to nonparticipating end users their confidence in the performance capabilities of energy efficient equipment.*

This linkage is covered in detail in Hypothesis 2, Market Barriers, Section 5.2.2.

Linkages 11, 16, 17 and 18 are all related to the indirect manner in which information flows from the FSTC through FSTC participants (linkage 11), manufacturers or designers (linkage 16), the ASTM (linkage 16), or from publications such as *Foodservice Equipment reports* to nonparticipants who have never attended an FSTC activity (linkage 18). Exhibit 5.28 presents the response to a general FSTC awareness question in 1999 versus 2003.

Exhibit 5.28
Nonparticipant Awareness of the FSTC



The pie charts in Exhibit 5.28 show that there has been a slight decrease in the percentage of nonparticipant respondents who have heard of the FSTC. Exhibit 5.29 shows that in 2003 more of those who have heard of the FSTC have heard via other nonparticipants or the FSTC itself and fewer via publications, dealers or tradeshowes. The sample size for this comparison is very small and none of the differences are statistically significant.

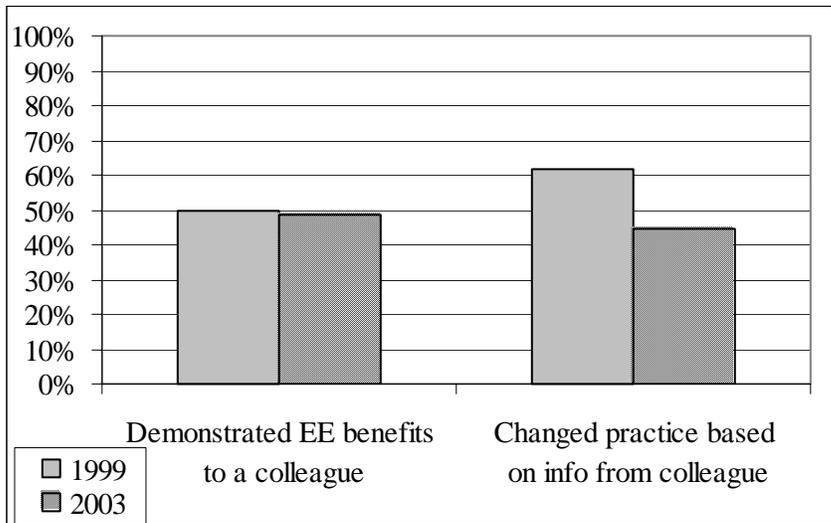
Exhibit 5.29
How Nonparticipants Heard of the FSTC

	1999		2003	
	Count	Percentage	Count	Percentage
Manufacturers	0	0%	1	10%
Publications	6	38%	1	10%
Trade Show	2	13%	0	0%
Other End User	0	0%	3	30%
Utility	2	13%	2	20%
Dealer	2	13%	0	0%
FSTC	0	0%	3	30%
Other	4	25%	0	0%

The discussion below explores the particular linkages in more detail.

Linkage #11: Changes in participants, and their interactions with nonparticipating end users, may affect nonparticipant purchase decisions

Exhibit 5.30
Nonparticipants Sharing Information



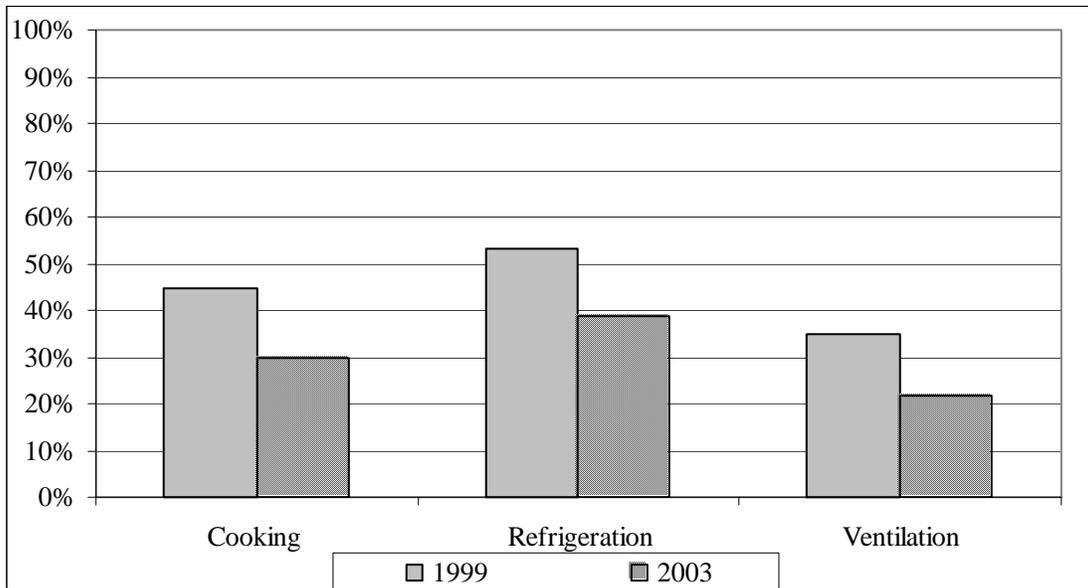
Nonparticipants in 1999 and 2003 were asked the number of times within the last few years that they shared information with colleagues or promoted internal policies regarding energy efficiency. Analysis of the frequency with which nonparticipants shared information with colleagues found the distribution of responses was not significantly different between 1999 and 2003, and the mean number of times they shared information (calculated using mean values for each category on the ordinal scale) dropped only slightly from 2.8 in 1999 to 2.2 in 2003. However, the analysis of the frequency with which nonparticipants promoted internal policies concerning energy efficiency based on information from a colleague did have a different distribution in 2003. Forty-five percent of nonparticipants in 2003 responded that they had promoted such policies versus 62% of nonparticipants in 1999. This difference was statistically

significant at the 95% level. A regression run to determine if any outside factors influenced this drop found that restaurants with more than 10 employees were more likely to engage in such behavior. Hence, for nonparticipants, the decline in the number of restaurants having more than 10 employees from 1999 to 2003 is responsible for the significant decline in the frequency with which respondents claimed to have promoted energy efficient policies based on information from a colleague. The mean number of times nonparticipants promoted internal policies regarding energy efficiency (again calculated using mean values for each category on the ordinal scale) also dropped from 3.0 in 1999 to 2.1 in 2003.

Linkage #16: *As information becomes more readily available, manufacturers and designers may provide information on energy efficient equipment to nonparticipating end users.*

Three questions were asked of the participants and nonparticipants regarding how many times in the last few years their manufacturer, dealer, designer or sales representative has recommended equipment that saved energy. In 1999 survey respondents were forced to respond with a specific number of times a recommendation had occurred; however, in 2003 less specific answers such as 'Hardly Ever' were accepted. As a result, all responses had to be grouped into comparable ordinal scales for analysis purposes. The grouping used for the three questions was: Never, Rarely (1 to 3 times), Sometimes (4 to 7 times) and Frequently (8 or more times). The analysis was performed using these ordinal scales for the 1999 and 2003 survey data. Exhibit 5.31 below compares the percentage of nonparticipants in 1999 versus 2003 that have received a recommendation (identified as those responding that have received recommendations 'Rarely', 'Sometimes' or 'Frequently') for the three different end uses.

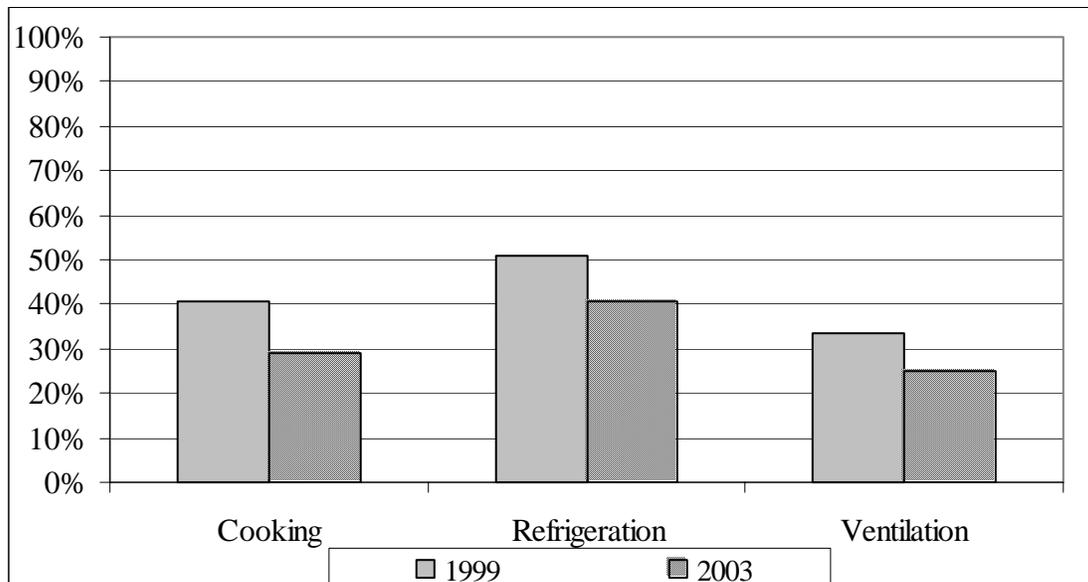
Exhibit 5.31
Percentage of Nonparticipants Who Received Energy Savings Recommendations from Manufacturers or Designers



From Exhibit 5.31 one can see that dealers and/or manufacturers are less likely to make an energy efficient equipment recommendation in 2003 than they were in 1999. Chi-squared statistics found the difference in the distribution of the responses in 1999 and 2003 statistically significant at the 95% level for cooking and refrigeration equipment and at the 90% level for ventilation equipment (p-values of 0.035, 0.039 and 0.061, respectively). In 2003 recommendations were again given most often for refrigeration equipment, followed by cooking and then ventilation equipment. It is interesting to note that when this same question was analyzed for FSTC participants they also claimed to have received fewer recommendations on energy saving equipment from manufacturers/dealers in the last few years. However, the observed differences for participants was not statistically significant for any of the end uses.

Analysis of this linkage was also approached from the end users' perspective. Exhibit 5.32 displays the percentage of nonparticipants who requested information on efficient equipment from manufacturers or designers.

Exhibit 5.32
Percentage of Nonparticipants Who Asked Manufacturer or Designer About Energy Saving Equipment



For cooking fewer people asked about equipment that saves energy in 2003 than in 1999. This difference was significant at the 90% level. For those who did ask, the number of times they asked did not change significantly, even though it did increase from 3.8 to 4.3.

For refrigeration there were no significant differences for end users between the percentage who asked about efficient equipment in 1999 and 2003. For those who asked, the number of times they asked did increase from 3.7 to 4.7; however, this change was not statistically significant.

For ventilation, fewer respondents requested information on energy efficient equipment in 2003 than in 1999; however, this decline was not statistically significant. Although

fewer nonparticipants requested information in 2003 those who did ask did so more often than they had in 1999 (the mean number of times rose from 3.3 to 4.8). This increase was statistically significant.

All of the information presented above leads to the conclusion that there has been no significant market effect between 1999 and 2003 with respect to nonparticipants requesting information or receiving recommendations from manufacturers or designers about energy efficient cooking, refrigeration or ventilation equipment.

Linkage #17: *The ASTM may also provide nonparticipating end users with information regarding standard testing methods.*

A comparison of responses to a series of ASTM related questions for nonparticipants in 1999 and 2003 is presented in Exhibit 5.33.

Exhibit 5.33
Nonparticipant Awareness of the ASTM and the ASTM Test Methods

	1999	2003
Percentage of Nonparticipants who had heard of the ASTM	20%	22%
Percentage of Nonparticipants who were aware of ASTM test methods	38%	34%
Percentage of Nonparticipants who were aware of the ASTM who have asked how equipment scored on the ASTM tests	32%	12%

Despite the fact that slightly more nonparticipants had heard of the ASTM in 2003, fewer were aware of the ASTM test methods and of those even fewer yet had asked about how equipment scored on these tests prior to purchase. It is puzzling that in both 1999 and 2003 nonparticipants responded that they were aware of the ASTM standard test methods despite not being aware of the ASTM. Neither the increase in the percentage of nonparticipants who had heard of the ASTM nor the decrease in the percentage of nonparticipants who were aware of the ASTM test methods were statistically significant. Nonparticipants who were aware of the ASTM test methods were asked if they had asked their dealers or manufacturing representative how certain pieces of equipment scored on these tests. The percentage responding that they had asked how equipment scored decreased significantly from 1999 to 2003.

Linkage #18: *Nonparticipating end users may be influenced by the FSTC indirectly via publications.*

Nonparticipants in both the 1999 and 2003 survey were asked if they received the magazine *Foodservice Equipment reports*. In 1999, 10% of the nonparticipant population responded they received the magazine compared with 15% in 2003. This increase was not statistically significant but is potentially a promising trend.

Link #20: *The information from the FSTC, ASTM, manufacturers, designers, and participants may combine to induce nonparticipant end users to purchase energy efficient equipment.*

Exhibit 5.34
Nonparticipant Intentions of Purchasing Energy Efficiency Equipment

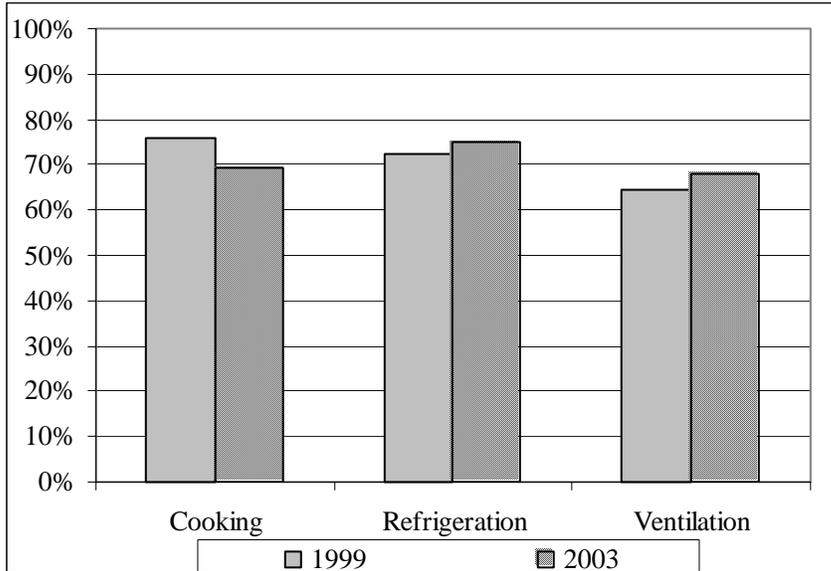


Exhibit 5.34 shows that there has been little shift from the baseline created in 1999 with regards to nonparticipants' intentions to purchase energy efficient equipment. Although the intentions for refrigeration and ventilation equipment increased slightly, cooking intentions decreased. None of these changes were statistically significant.

5.1.2.3 *Nonparticipant Barriers*

In a fashion similar to that presented in Section 5.1.1.3, this section evaluates perceived market barriers for nonparticipants in 2003 compared to those from 1999.

The first potential market barrier to be evaluated for nonparticipants was *Organizational Practices*. Exhibit 5.35 presents the means and 95% confidence intervals for the seven statements that nonparticipants were asked to rank to measure this market barrier. These statistics are provided for 1999 and 2003 and the means from the two years were evaluated using a chi-squared statistic to determine if the differences between the means are statistically significant. The mean score of the third statement has been reversed so that it is consistent with the other statements where the higher the mean the more substantial the barrier.

Exhibit 5.35
Organizational Practices as a Market Barrier for Nonparticipants

Market Barrier: Organizational Practices	1999		2003		Significantly Different at 95%
	MEAN	95% CL (+/-)	MEAN	95% CL (+/-)	
Our practice is not to worry about equipment unless it breaks down.	4.58	0.71	4.53	0.75	No
When we select equipment, the most important consideration is immediate delivery	6.54	0.64	6.01	0.75	No
Our company includes the long run operating and maintenance costs of equipment in its initial calculations	3.54	0.53	4.22	0.71	No
When we select our equipment, the most important issue is its initial cost.	6.87	0.59	6.44	0.70	No
The most important operational issue for our company is keeping our foodservice costs under control.	8.99	0.36	8.29	0.52	Yes
Investing extra money in energy efficient equipment would reduce our ability to take advantage of other investment opportunities.	6.00	0.66	5.55	0.75	No
I don't see any reason to be proactive with regard to energy efficiency in today's economy.	4.09	0.68	3.17	0.69	No*
Average for Organizational Practices	5.83	0.32	5.50	0.38	No

* Significantly different at 90% level.

The nonparticipants' overall perceptions of Organizational Practices as a market barrier have not significantly decreased since 1999; however, the baseline does seem to be decreasing slightly. The only significant change at the 95% level was in nonparticipants' views of what the most important operational issue was for their company. Keeping food service costs under control still had the highest average score of all the statements (mean score 8.29) and was 0.70 points lower than it was in 1999. The drop in 'not seeing any reasons to be proactive toward energy efficiency due to the economy' was significant at the 90% level.

Split or Misplaced Incentives was the next market barrier evaluated for end users. Exhibit 5.36 presents the results of end user attitudes regarding Split or Misplaced Incentives in 1999 versus 2003.

Exhibit 5.36
Split/Misplaced Incentives as a Market Barrier for Nonparticipants

Market Barrier: Split/Misplaced Incentives	1999		2003		Significantly Different at 95%
	MEAN	95% CL (+/-)	MEAN	95% CL (+/-)	
The operational costs savings from installing energy efficient equipment would not flow into my department's budget.	4.59	0.66	4.57	0.76	No
The people who have to make the investments in energy for our company are not the same ones who would see the benefits in lower operating costs.	4.43	0.74	4.23	0.80	No
Average for Split/Misplaced Incentives	4.51	0.57	4.40	0.64	No

Exhibit 5.36 shows that in 2003 Split or Misplaced Incentives continues to be regarded as a relatively minor market barrier for end users. None of the decreases seen in the table above were significant.

The tables in Exhibit 5.37 summarize the assessment of nonparticipants' beliefs concerning the *Performance Uncertainty* market barrier for cooking, refrigeration and ventilation equipment.

Exhibit 5.37

Performance Uncertainty as a Market Barrier for Nonparticipants

Market Barrier: Performance Uncertainty for Cooking	1999		2003		Significantly Different at 95%
	MEAN	95% CL (+/-)	MEAN	95% CL (+/-)	
When we select cooking equipment, the most important thing we look for is reliability of operation	8.77	0.39	8.84	0.47	No
The return on investment from energy efficient cooking equipment is difficult to estimate	7.34	0.60	6.50	0.70	Yes
Our company is unwilling to take the risks involved in the use of high efficiency cooking equipment.	4.66	0.68	4.19	0.77	No

Market Barrier: Performance Uncertainty for Refrigeration	1999		2003		Significantly Different at 95%
	MEAN	95% CL (+/-)	MEAN	95% CL (+/-)	
When we select refrigeration equipment, the most important thing we look for is reliability of operation	9.11	0.30	8.81	0.43	No
The return on investment from energy efficient refrigeration equipment is difficult to estimate	7.37	0.56	6.42	0.71	Yes
Our company is unwilling to take the risks involved in the use of high efficiency refrigeration equipment.	4.55	0.64	4.28	0.76	No

Market Barrier: Performance Uncertainty for Ventilation	1999		2003		Significantly Different at 95%
	MEAN	95% CL (+/-)	MEAN	95% CL (+/-)	
When we select ventilation equipment, the most important thing we look for is reliability of operation	8.89	0.39	8.70	0.48	No
The return on investment from energy efficient ventilation equipment is difficult to estimate	7.59	0.59	6.20	0.77	Yes
Our company is unwilling to take the risks involved in the use of high efficiency ventilation equipment.	4.52	0.69	4.09	0.80	No

Market Barrier: Performance Uncertainty	1999		2003		Significantly Different at 95%
	MEAN	95% CL (+/-)	MEAN	95% CL (+/-)	
Average for Performance Uncertainty (All End Uses)	7.05	0.34	6.45	0.39	Yes

One can see from Exhibit 5.37 that there has been a modest decrease in nonparticipants' views about Performance Uncertainty as a market barrier since 1999. The change indicates that the baseline for nonparticipants is slowly decreasing. Again, the mean score of the first statement for each end use has been reversed so that the score is consistent with the other statements where the higher the mean the more substantial the barrier. The changes among nonparticipants were nearly identically opposite to those of the participants in that participants showed a small increase in the individual questions. Despite the small decreases in most of the individual questions for each of the end uses, only one of the decreases for each end use ('The return on investment from energy

efficient [end use] equipment is difficult to estimate’) was statistically significant at the 95% level. The mean score for all nine of the Performance Uncertainty statements (across all three end uses) was evaluated to determine if a significant change had occurred for Performance Uncertainty overall between 1999 and 2003. The resulting chi-squared statistic had a p-value of 0.0253, which indicates that the reduction in the Performance Uncertainty market barrier is significant at the 95% level.

The tables presented in Exhibit 5.38 evaluate nonparticipants’ attitudes regarding *Information Search Costs* as a market barrier with respect to cooking, refrigeration and ventilation equipment.

**Exhibit 5.38
Information Search Costs as a Market Barrier for Nonparticipants**

Market Barrier: Information Search Costs for Cooking	1999		2003		Significantly Different at 95%
	MEAN	95% CL (+/-)	MEAN	95% CL (+/-)	
Our company has the expertise to evaluate our equipment	4.01	0.64	4.34	0.73	No
It’s hard to figure out which cooking equipment to buy because of all of the technical information you have to find	5.35	0.72	5.80	0.84	No
It’s hard to get a handle on the benefits of energy equipment without a detailed written analysis	7.09	0.63	6.83	0.72	No

Market Barrier: Information Search Costs for Refrigeration	1999		2003		Significantly Different at 95%
	MEAN	95% CL (+/-)	MEAN	95% CL (+/-)	
Our company has the expertise to evaluate our equipment	4.21	0.62	4.08	0.70	No
It’s hard to figure out which refrigeration equipment to buy because of all of the technical information you have to find	5.40	0.69	5.74	0.81	No
It’s hard to get a handle on the benefits of energy equipment without a detailed written analysis	7.03	0.61	6.82	0.69	No

Market Barrier: Information Search Costs for Ventilation	1999		2003		Significantly Different at 95%
	MEAN	95% CL (+/-)	MEAN	95% CL (+/-)	
Our company has the expertise to evaluate our equipment	4.50	0.67	4.25	0.77	No
It’s hard to figure out which ventilation equipment to buy because of all of the technical information you have to find	5.80	0.70	5.69	0.83	No
It’s hard to get a handle on the benefits of energy equipment without a detailed written analysis	7.01	0.65	6.60	0.75	No

Market Barrier: Information Search Costs	1999		2003		Significantly Different at 95%
	MEAN	95% CL (+/-)	MEAN	95% CL (+/-)	
Average for Information Search Costs (All End Uses)	5.55	0.44	5.66	0.48	No

Exhibit 5.38 shows that while the baseline appears to be decreasing based on the mean response values to many of the Information Search Cost statements, there have not been any significant changes in nonparticipants’ perceptions of Information Search Costs as a market barrier since 1999.

The final market barrier evaluated was *Asymmetric Information*. Again, this is characterized as a market barrier if one party (namely the dealer or salesperson) has, or

is perceived to have, more information or knowledge concerning the energy efficient equipment, thus leaving the food service operators feeling like they are at a disadvantage.

Exhibit 5.39

Asymmetric Information as a Market Barrier for Nonparticipants

Market Barrier: Asymmetric Information for Cooking	1999		2003		Significantly Different at 95%
	MEAN	95% CL (+/-)	MEAN	95% CL (+/-)	
Cooking equipment sales people usually just try to push whatever manufacturer they're closest to	6.85	0.65	6.83	0.74	No
Cooking equipment dealers and representatives use the desire for high efficiency equipment by customers like us to charge more than it is really worth	6.47	0.64	6.69	0.68	No
I think much of what salesmen tell us about performance of high efficiency cooking equipment is exaggerated	5.97	0.58	6.32	0.71	No

Market Barrier: Asymmetric Information for Refrigeration	1999		2003		Significantly Different at 95%
	MEAN	95% CL (+/-)	MEAN	95% CL (+/-)	
Refrigeration equipment sales people usually just try to push whatever manufacturer they're closest to	6.97	0.63	6.64	0.74	No
Refrigeration equipment dealers and representatives use the desire for high efficiency equipment by customers like us to charge more than it is really worth	6.51	0.62	6.80	0.64	No
I think much of what salesmen tell us about performance of high efficiency refrigeration equipment is exaggerated	5.81	0.58	6.07	0.68	No

Market Barrier: Asymmetric Information for Ventilation	1999		2003		Significantly Different at 95%
	MEAN	95% CL (+/-)	MEAN	95% CL (+/-)	
Ventilation equipment sales people usually just try to push whatever manufacturer they're closest to	6.95	0.66	6.56	0.80	No
Ventilation equipment dealers and representatives use the desire for high efficiency equipment by customers like us to charge more than it is really worth	6.23	0.66	6.84	0.71	No
I think much of what salesmen tell us about performance of high efficiency ventilation equipment is exaggerated	6.01	0.59	5.98	0.70	No

Market Barrier: Asymmetric Information	1999		2003		Significantly Different at 95%
	MEAN	95% CL (+/-)	MEAN	95% CL (+/-)	
Average for Asymmetric Information (All End Uses)	6.33	0.43	6.44	0.52	No

The differences between nonparticipants in 1999 and 2003 are very small and go in both directions, making it difficult to say in which direction the baseline is moving. None of the changes were statistically significant based on chi-squared statistics.

The nonparticipant findings presented above show that there is a general decrease across most of the market barriers for end users. Despite the lack of statistical significance for most of the declines, one can argue that the baseline is slowly

decreasing; however, more time is needed before these changes in the baseline will be statistically measurable.

Section 5.1.3 begins the more qualitative portion of this report. Manufacturer data is presented next.

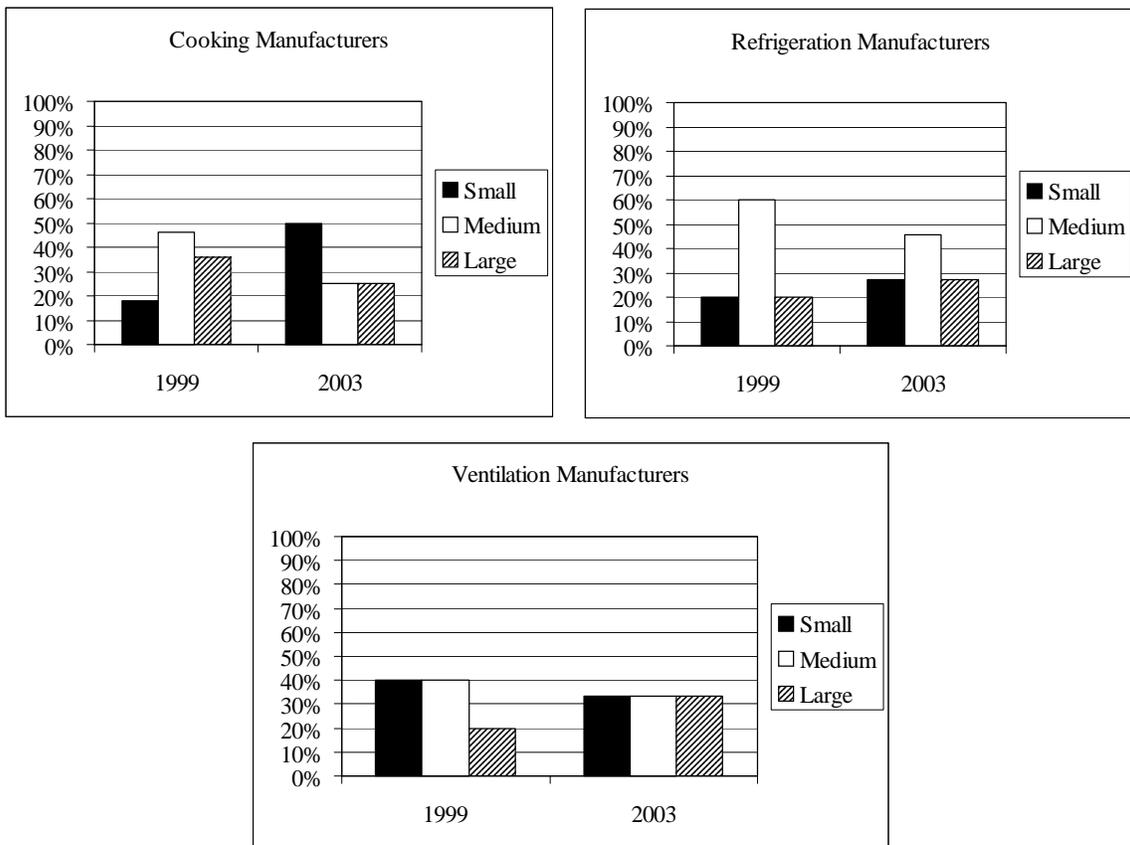
5.1.3 Manufacturers

The detailed responses to the manufacturer surveys are provided in Appendix D.

5.1.3.1 Firmographics

The self-reported size of the manufacturers is summarized by year in Exhibit 5.40. The size of each manufacturer sample (11 to 13 data points within each manufacturer type in a study year) precludes statistical assessment of differences in responses. However, they are included to give the reader a sense of how the samples differed between the two studies.

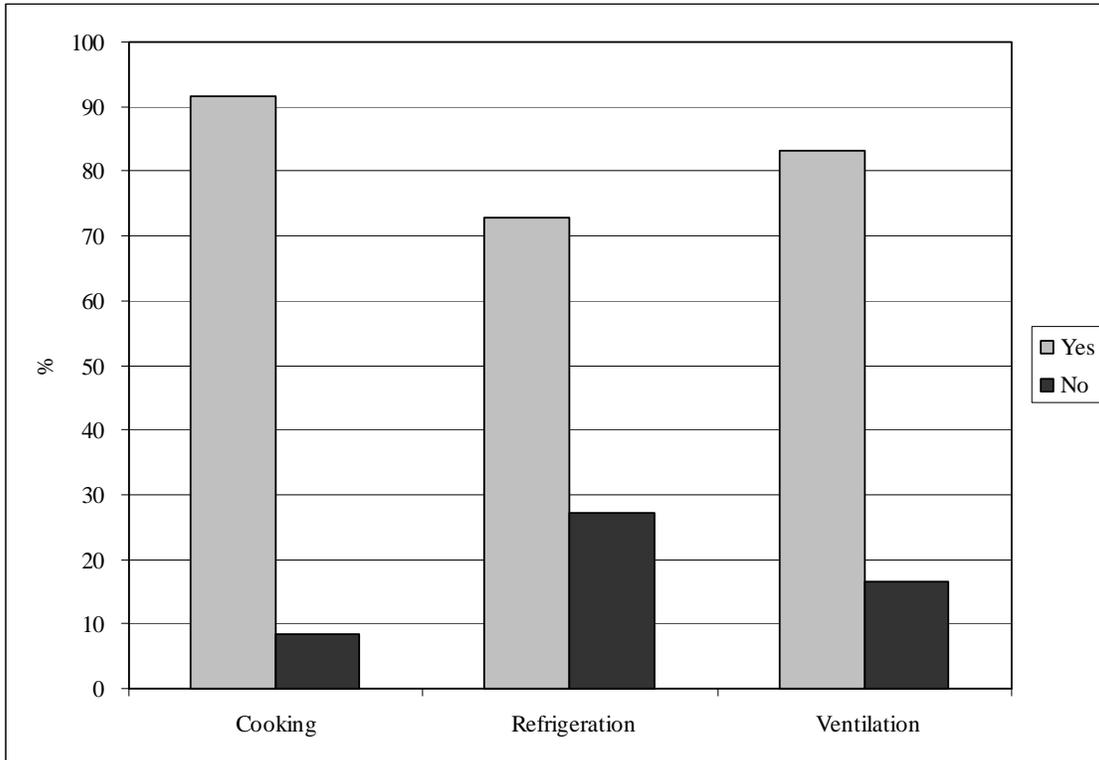
Exhibit 5.40
Self-Reported Size of Manufacturers



Each of the manufacturers was asked to indicate whether they offered what they considered to be an 'energy efficient option' in their product line. As shown in Exhibit 5.41, the majority of companies reported that they consider at least some portion of

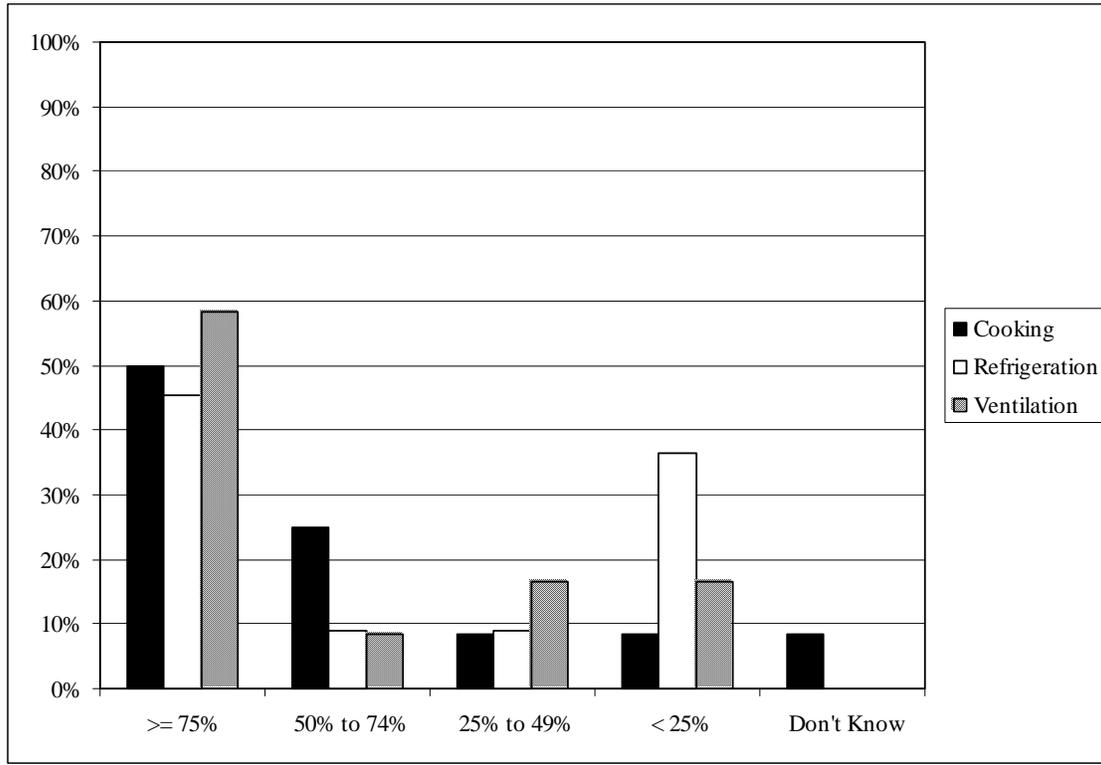
their product line to be energy efficient. This report is similar to the 1999 study. However, this response needs to be qualified with the fact that this study did not request specifics about what the respondent considered an 'energy efficient option'. For the cooking manufacturers, it is the use of the ASTM test methods that provide an indication of energy use. Yet only half of the cooking manufacturers stated they used this test (see Exhibit 5.50). Therefore, the responses indicated below should be viewed with some reserve.

Exhibit 5.41
Energy Efficient Option Offered to Customer



This question was followed with a query about what percentage of product manufactured within a year was considered efficient. As shown in Exhibit 5.42, the manufacturers indicated that over half of the product produced in a year is energy efficient. These results must be qualified as above for the 'energy efficient option' response, since this study did not follow up and independently verify efficiency levels from these manufacturers.

Exhibit 5.42
Percentage of Product that is Energy Efficient



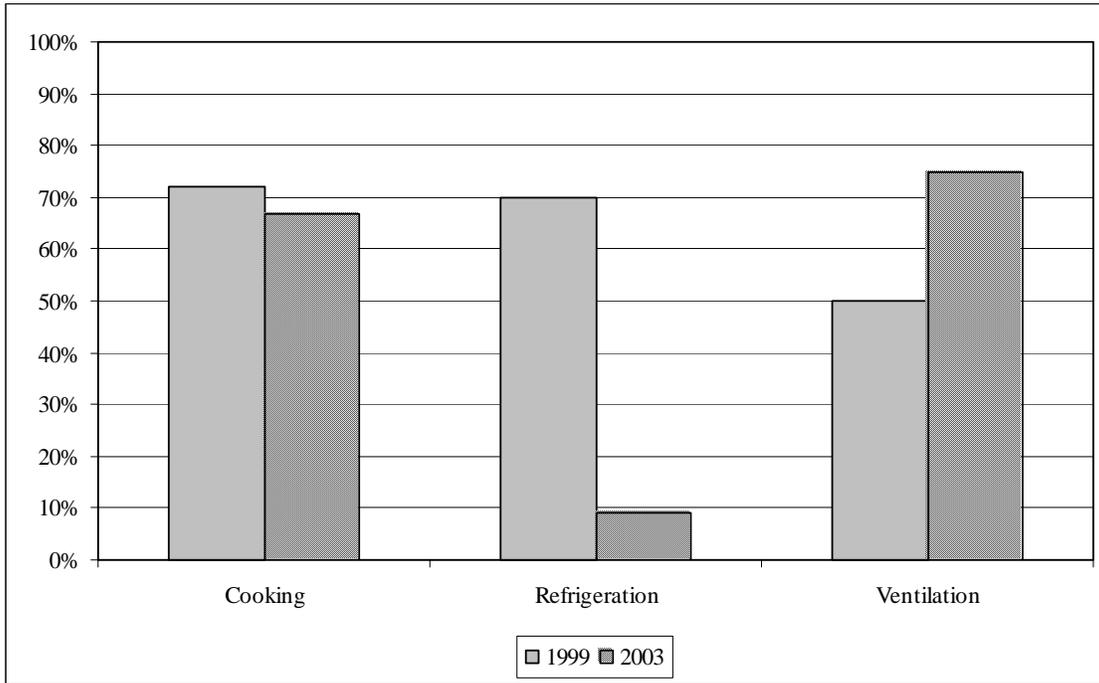
5.1.3.2 Linkages

The program theory included 23 causal/communication linkages. The manufacturer surveys covered linkages #6, #7, #9, #12, #13, #14, and #17. The communication links indicated in Exhibit 3.2 could not occur until the manufacturers were aware of the FSTC or the test methods produced by the FSTC.

Linkage #6: *The FSTC informs manufacturers, distributors, and designers about energy efficient equipment. The manufacturers may request that the FSTC test their equipment. Distributors and designers may also request information about energy efficiency.*

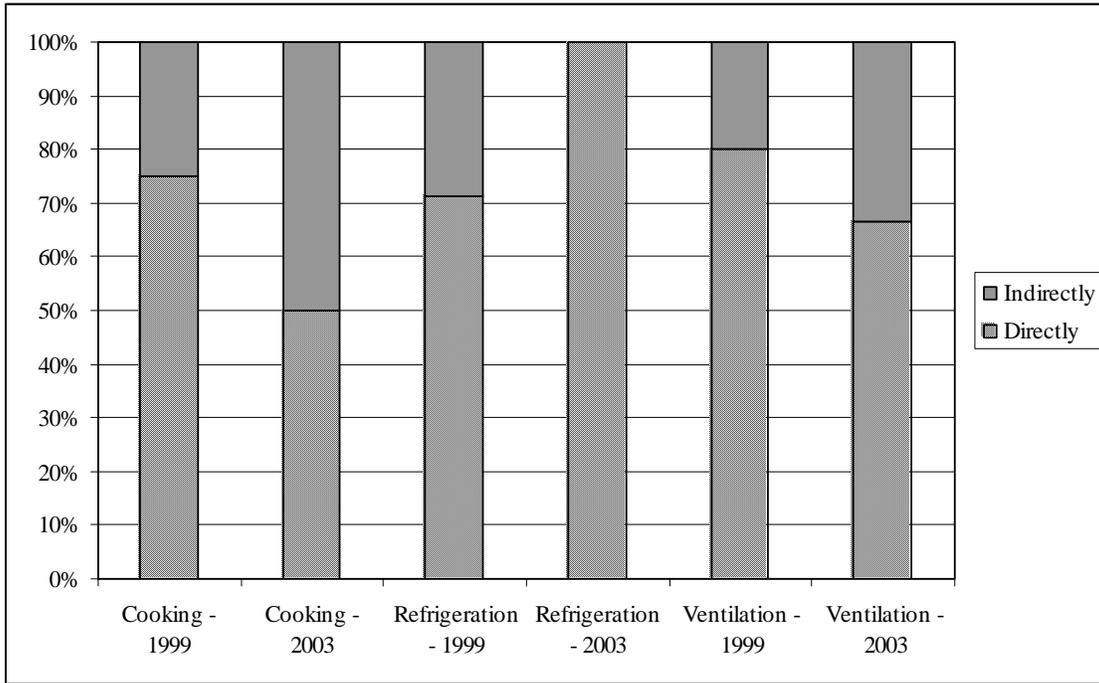
Manufacturer awareness of the FSTC is shown in Exhibit 5.43 while Exhibit 5.44 indicates whether they heard of the FSTC in a direct or indirect manner. Indirect exposure to the FSTC could have occurred through reading an article in a magazine that referenced the FSTC, hearing about them from a colleague, etc. Direct exposure was considered to be attendance at a seminar or working directly with a member of the FSTC.

Exhibit 5.43
Manufacturers Who Have Heard of the FSTC



The low percentage of refrigeration manufacturers who heard about the FSTC in 2003 is probably due to sample differences between the two studies. Not only are there many refrigeration manufacturers that have the potential to make it into the sample, the focus of the FSTC has been on cooking and ventilation, making it less likely that they are widely known. Exhibit 5.44 shows that the one refrigeration survey participant who heard about the FSTC heard about them directly. While not statistically significant, it is interesting to note that more cooking and ventilation manufacturers appear to be hearing about the FSTC indirectly. Possibly, this is an indication of the dissemination of information through the market place.

Exhibit 5.44
How Manufacturers Heard of the FSTC



Specific data on the use of test methods are presented in Section 5.2.5, Hypothesis #5.

Linkage #7: Increased awareness and knowledge of energy efficient equipment may result in participants seeking more information from manufacturers and kitchen designers regarding performance, cost, durability, etc.

According to the manufacturers, few of their customers give energy efficiency a high priority (Exhibit 5.45) and less than half of their customers ask for information on energy efficiency on a regular basis (considered over 50% of the time). Noteworthy among the responses in Exhibit 5.46 is the increase in the percentage of customers asking about ventilation efficiency in the 2003 study. The ventilation manufacturers stated that over 40% of their customers are now asking about efficient ventilation on a regular basis whereas in the 1999 study, there were no customers in this category. The FSTC has been very active in this area within the past few years (i.e., writing up a design guide and updating sections within the ASHRAE handbook). While there is no causality that can be directly attributed to the increase seen in Exhibit 5.46, it is possible that the FSTC played a part in creating the increased demand for this information.

Exhibit 5.45
Priority Customers Give Energy Efficient Equipment According to Manufacturers

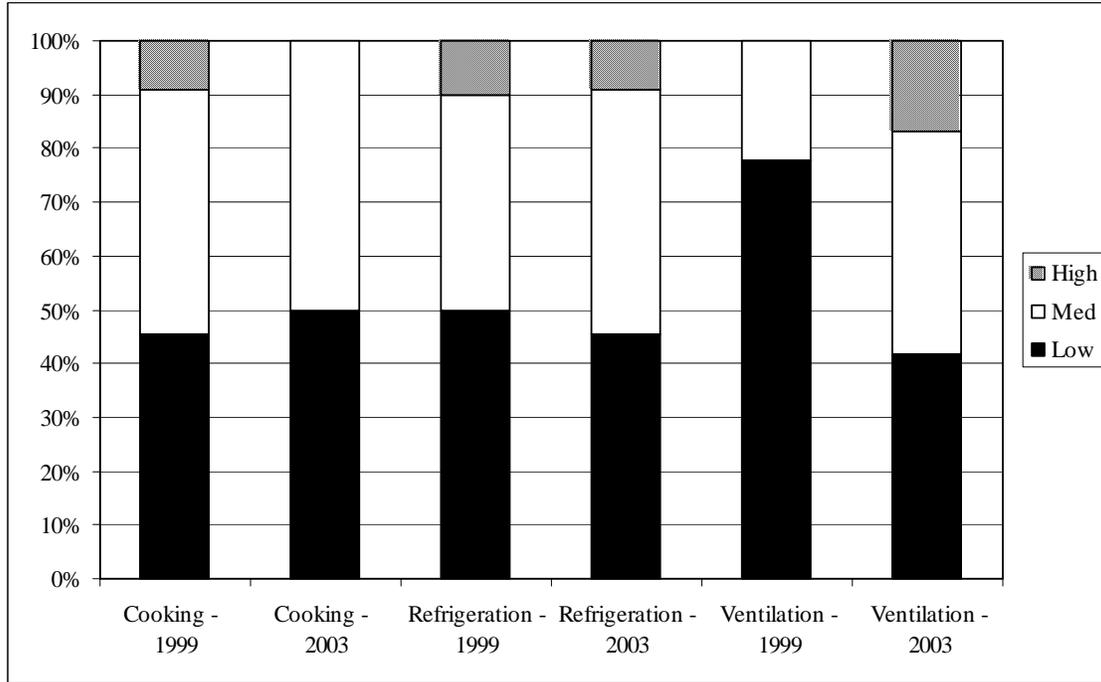
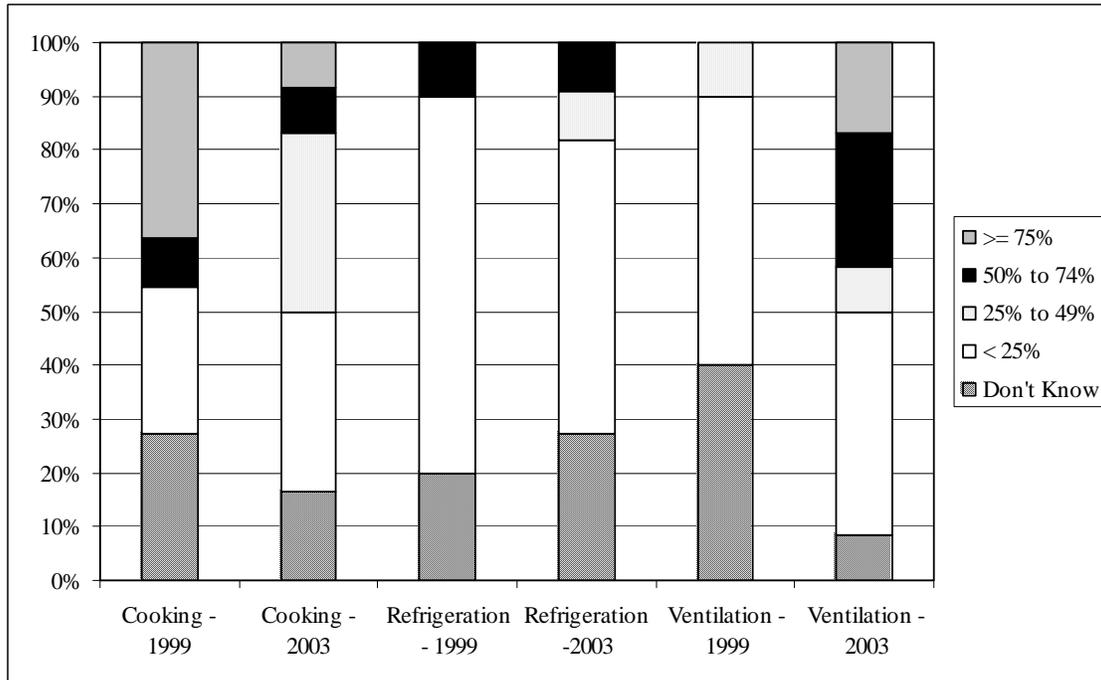
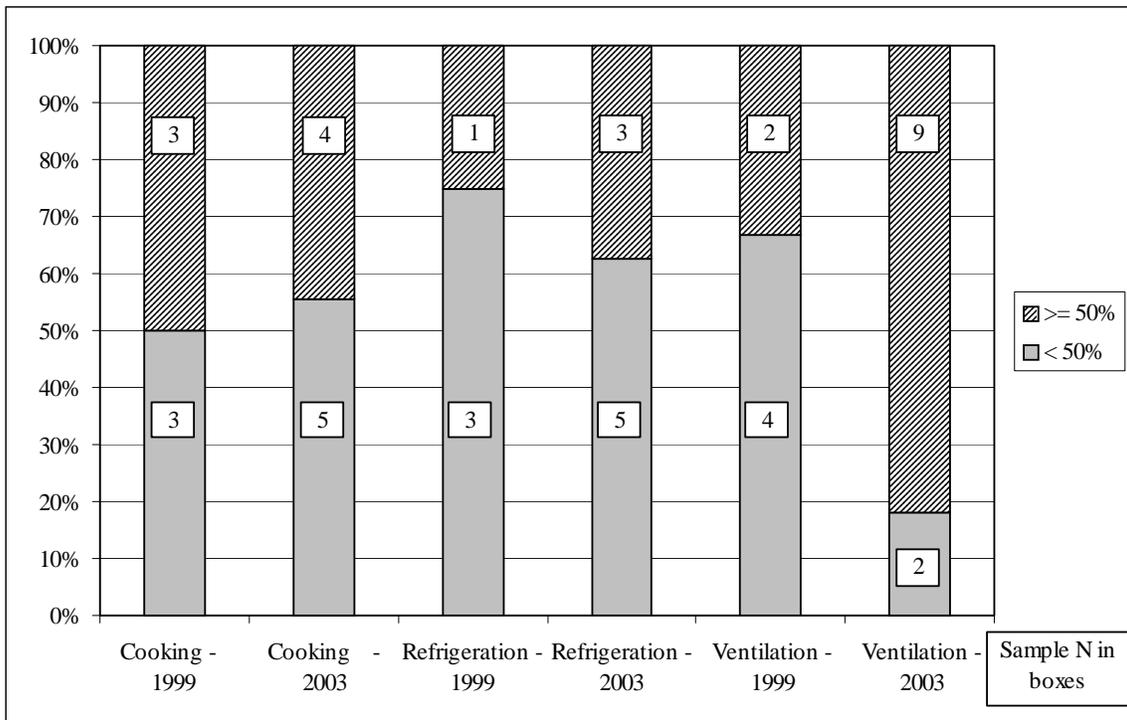


Exhibit 5.46
Percentage of Time Customers Ask Manufacturers' Representatives About Energy Efficient Equipment



While linkage #7 indicates that the participants may ask about energy efficiency data, the arrow in the model goes both ways, indicating that the manufacturer can also provide this information proactively. Exhibit 5.47 shows that anywhere from 25% to 75% of manufacturers tend to recommend energy efficient equipment to their customers over half of the time. This particular exhibit has had the 'Don't Know' responses removed to provide a better idea of the comparisons when the respondent had an answer to the question. The ventilation manufacturers indicated an increase in both the number of manufacturers who knew they recommended efficient equipment and the percentage of time that they did so.

Exhibit 5.47
Percentage of Time that Manufacturers' Representatives Recommend Energy Efficient Equipment to Customers



The manufacturers promote many features to their customers. Exhibit 5.48 has a listing of the various responses from the 1999 and 2003 studies of those features they most promoted. (This particular question allowed multiple responses, so the total of all responses was greater than the actual number of survey respondents.) Of interest in this list is the ranking of energy efficiency between the two studies, where it moved from the 3rd highest promoted feature in 1999 to the most promoted feature in 2003. The percentages of the 9 responses for energy efficiency were evenly split among the three manufacturers in the 1999 study. In the 2003 study, there were a few more responses from the ventilation manufacturers than there were from the refrigeration manufacturers. This fits in with the other responses provided by the manufacturers.

Exhibit 5.48

Frequency of Responses Mentioned as Features Most Promoted by Manufacturers

Response	Frequency		Rank	
	1999 N=31	2003 N=36	1999 N=31	2003 N=36
Reliability	19	17	1	2
Performance	11	4	2	7
Energy Efficiency	9	23	3	1
Servicability	7	2	4	9
Options	7	14	4	3
Price	5	6	6	5
Looks	3	1	7	10
Safety	2	5	8	6
Versatility	2	0	8	NA
Availability	1	0	9	NA
Construction	0	9	NA	4
Other	0	3	NA	8
Total	66	84		

One proximate indicator of a market effect is an increase in awareness, attitudes, or knowledge about a topic. A main focus of the FSTC is the creation of standardized testing methods for energy efficiency in cooking equipment, which show up in the logic model in Linkage #5.

Linkage #5 – *The FSTC develops test methods for use in establishing codes and standards that are then adopted, used or incorporated in codes and/or standards by various organizations (e.g., ASTM, DOE (Energy Star), CEC, ASHRAE).*

A proximate indicator, then, of this links starts out with an awareness of the test method and can include the use of the test method. Exhibit 5.49 and Exhibit 5.50 indicate that there has been little to no change in the awareness or use of test methods since the 1999 study. Because of the small sample size, no statistical significance can be placed on the observed differences between the two studies.

Exhibit 5.49
Degree to Which Cooking Manufacturers are Aware of ASTM Methods

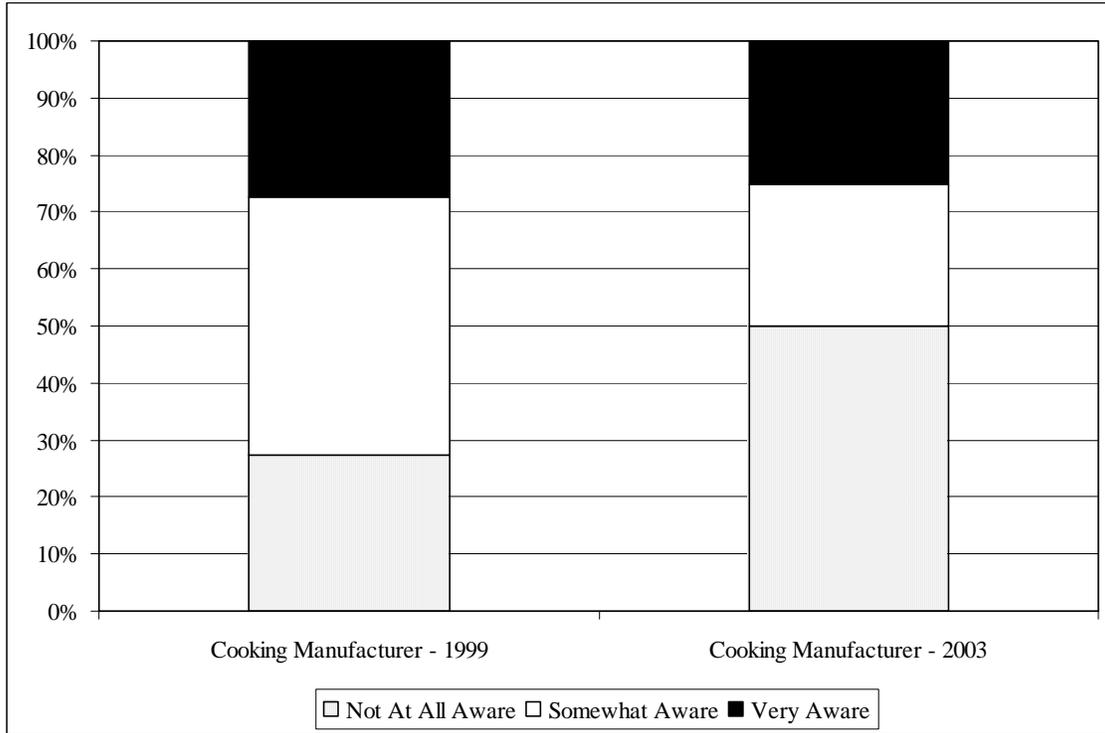
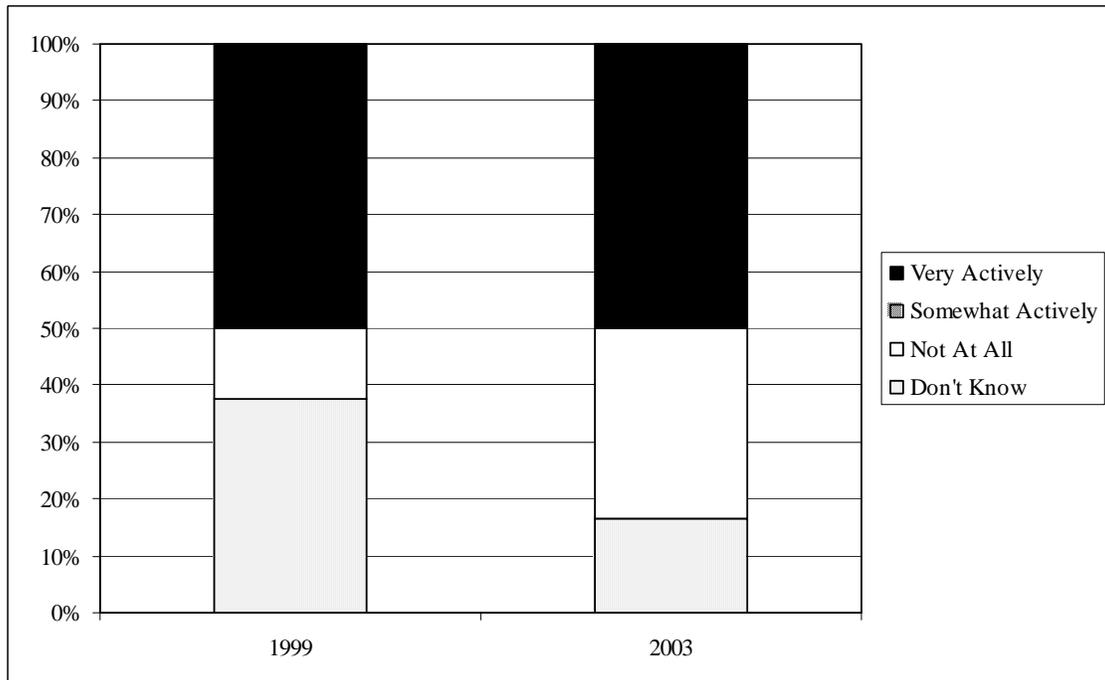


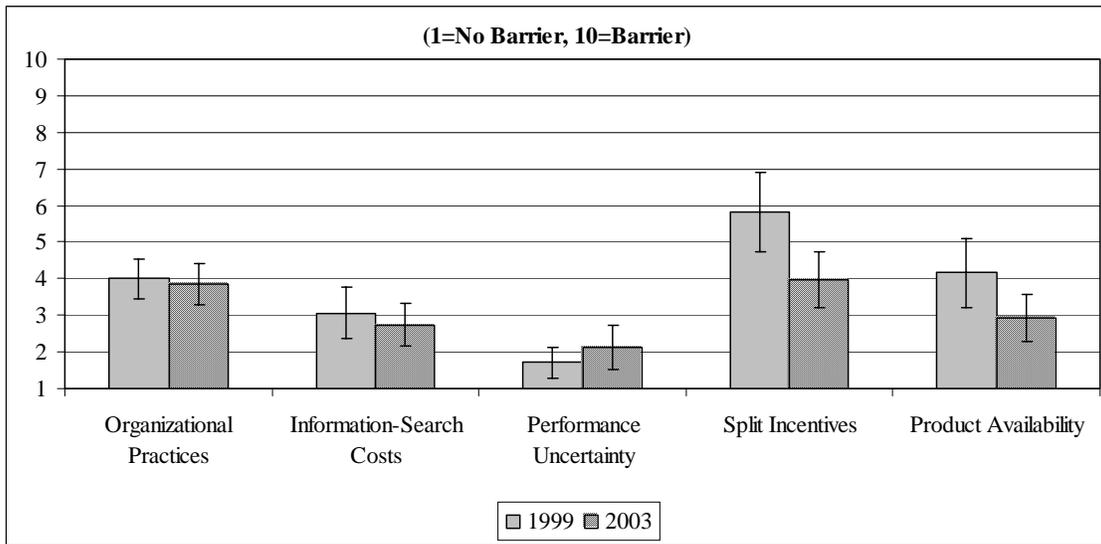
Exhibit 5.50
Degree to Which Cooking Manufacturers Actively Incorporate ASTM Methods



5.1.3.3 Market Barriers

The manufacturers were asked a set of questions to elicit responses about their perception of possible barriers to energy efficient equipment¹⁰. The market barrier questions from the 1999 study were asked of the respondents in the 2003 study to see if there were changes. Exhibit 5.51 has the five potential barriers in the two studies. As the total number of manufacturers was over 30, a t-test was performed to see if the responses between the two years were statistically different.

**Exhibit 5.51
Manufacturer Market Barriers for Energy Efficient Equipment**



With the responses sliding from no perceived barrier at zero to a very high barrier at ten, the manufacturers see Organizational Practices, Information Search Costs, and Performance Uncertainty as low barriers to energy efficiency. There was no statistical difference between the two studies for these barriers. However, both Split Incentives and Product Availability were statistically lower in the 2003 study.

No other parts of the survey gave any indication as to why Split Incentives was perceived to have been reduced. This was one of the questions posed to the Advisory Board focus group. The focus group conjectured that the 2001 energy crisis in California (and the subsequent awareness of efficiency) may have been the reason why this market barrier was considered lower in 2003. They also speculated that, with the downsizing of companies, each person is ‘wearing more hats’, which leads to potential for the same person to be responsible for equipment purchase and facility maintenance. The downsizing possibility may fit better with the fact that the manufacturers were nationwide and not specific to California.

The question of product availability was structured to see if the manufacturers perceived that it was difficult to find a market for energy efficient products. As shown above, this barrier was reduced between the two studies from 4.2 to 2.9 – a statistically

¹⁰ The market barriers have already been defined in Section 3.3.

significant difference. As neither participating nor nonparticipating end users indicated that they were intending to purchase energy efficient equipment any more often now than in the previous study (see Exhibit 5.80), it does not appear that an increase in market demand was driving the manufacturers' perception of an increased ease in finding markets for their energy efficient products. While various reasons can be speculated upon, the decreases in the two barriers are probably best left as anomalies that cannot be fully explained by the data in this study.

5.1.4 Designers

There were 11 kitchen designers interviewed in the 1999 study and 13 interviewed for this 2003 study. Survey responses for the 2003 group are located in Appendix C. No statistical comparisons can be made on a group of responses this small. Therefore, any differences seen between the two study years should be considered a possible trend among the designers.

5.1.4.1 Firmographics

The firmographics of the designer companies are provided as a platform from which to view the responses of the two studies. As presented in Exhibit 5.52, there was a larger percentage of designers who considered themselves as part of medium or large companies in the 2003 study than in the 1999 study.

Exhibit 5.52
Self-Reported Size of Designers

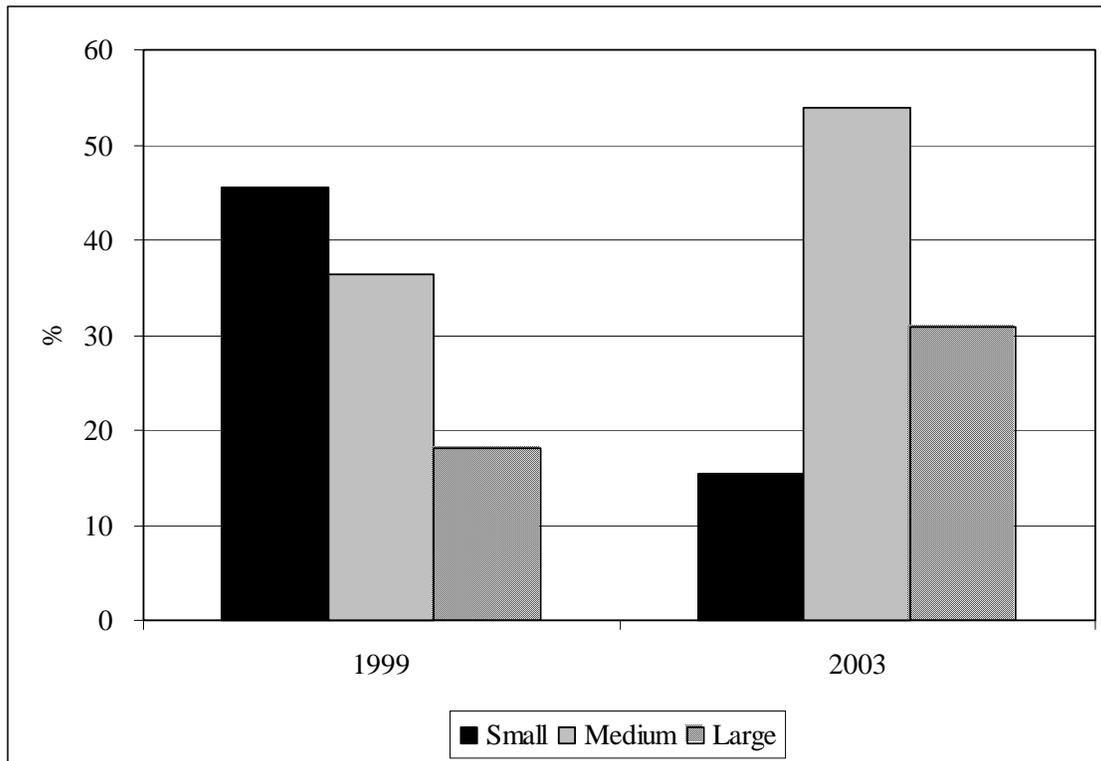
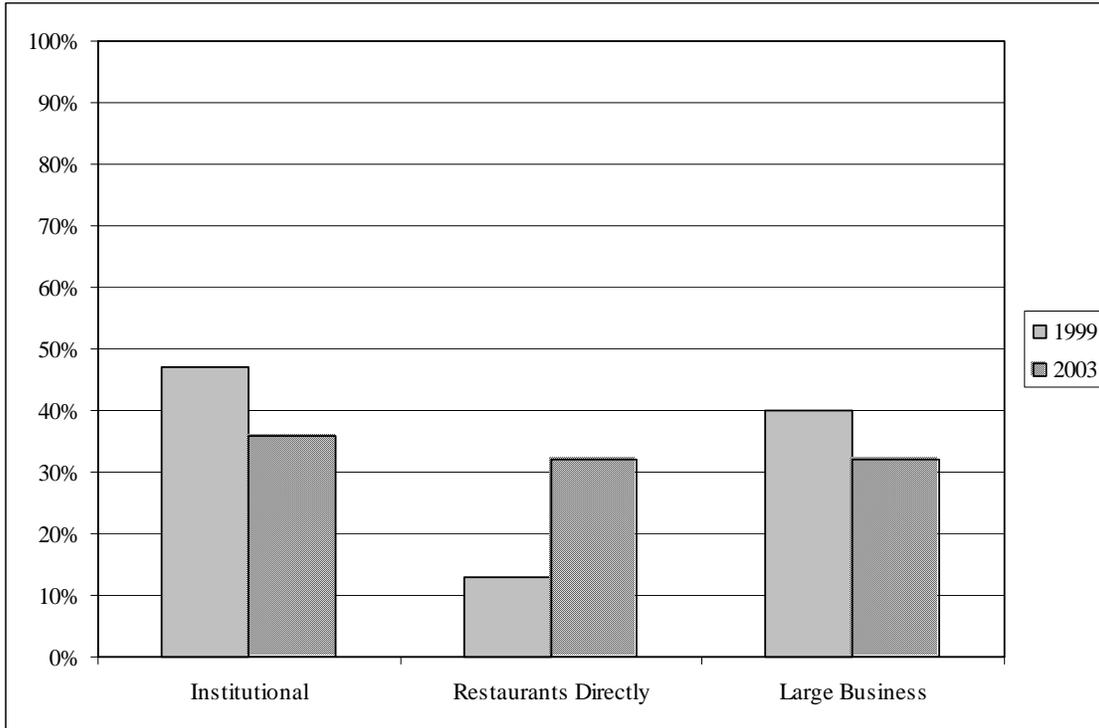


Exhibit 5.53 indicates that the designers had similar mixes of customer types in both studies, although the 2003 study had a more even split among the three types of customers. This could be explained by the larger companies having more clientele with whom the designers work.

Exhibit 5.53
Self-Reported Customer Type of Designers



5.1.4.2 Linkages

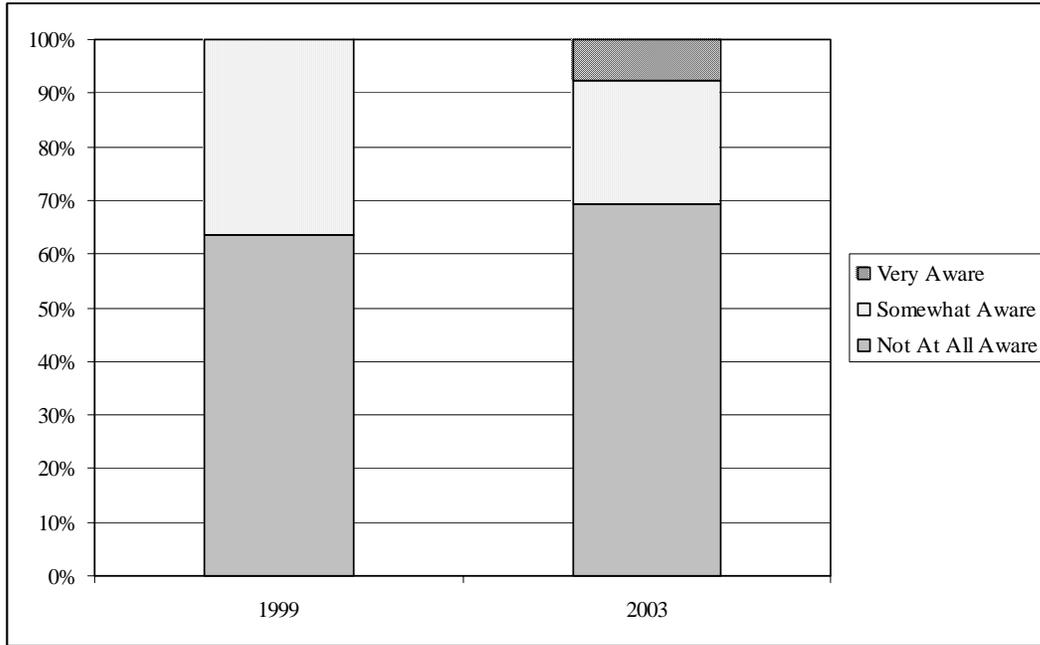
There were 23 causal/communication linkages hypothesized in the program theory. The designer surveys covered linkages #6, #7, #9, #12, #13, #14a, and #16.

As with the manufacturers, the first indicator that the FSTC is succeeding in delivering their message to the designers is seen through an increased awareness of the FSTC and/or the ASTM test methods (i.e. Linkages #6 and #13).

With 64% of the designers aware of the FSTC in 1999 and 62% aware in this study, there has been no change in designers' awareness of the FSTC overall. However, there was a slight increase in the number of designers who considered themselves 'very aware' of the ASTM test methods. (Exhibit 5.54).

Among those who were aware of the FSTC, one designer interviewed in the 1999 study had contacted the FSTC (to find out about new technologies), while two designers in the 2003 study had contacted the FSTC (to evaluate equipment options and to obtain unbiased information on equipment performance).

Exhibit 5.54
Designer Awareness of ASTM Test Methods



Linkages #7, #9, #12, and #14a cover both the designers' perception of barriers (covered in Section 5.1.4.3) and their behaviors, which are described next.

Exhibit 5.55 shows that the designers continue to discuss energy efficiency with their customers more often than their customers ask about efficiency.

Exhibit 5.55
Designer Discussions on Energy Efficiency by End Use



Similarly, designers not only discuss energy efficiency equipment more than customers ask about it, they recommend the equipment more than customers request efficient equipment. Exhibit 5.56 shows the results of the designers surveyed for the 2003 study. Of interest is the apparent trend that designers who are aware of the FSTC recommend energy efficient equipment more often than those who are not aware. Designers who are aware of the FSTC recommend energy efficient equipment 44% of the time on average, while those who are not aware make energy efficient recommendations an average of 32% of the time. Due to the small samples, though, no statistical significance can be attached to this inclination.

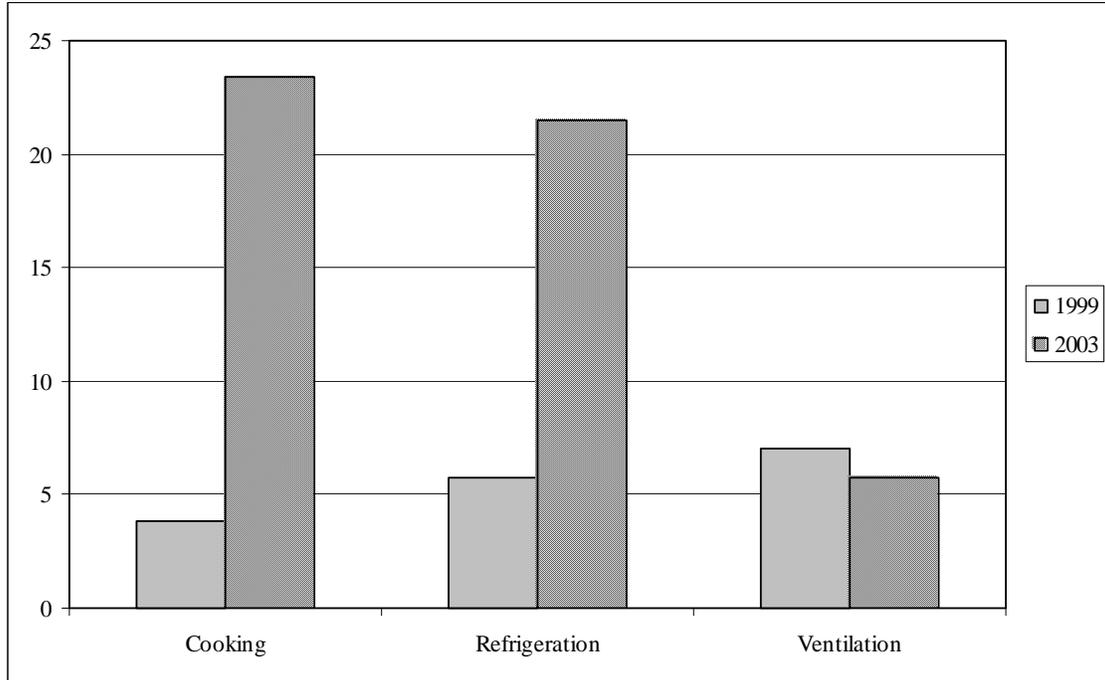
Exhibit 5.56
Recommendations by Designers and Requests by Customers for Energy Efficiency Equipment – 2003 Study



Linkage #14a - As designers become more knowledgeable about energy efficient equipment, they increasingly request performance data from manufacturers. Designers increase the use of performance specifications in their equipment requirements.

As shown in Exhibit 5.57, on average the designers state they are asking the manufacturers more about energy efficient equipment in 2003 than they did in 1999, specifically for cooking and refrigeration. Although not shown in Exhibit 5.57, the designers who were aware of the FSTC tended to ask about efficient equipment more often than those who were unaware.

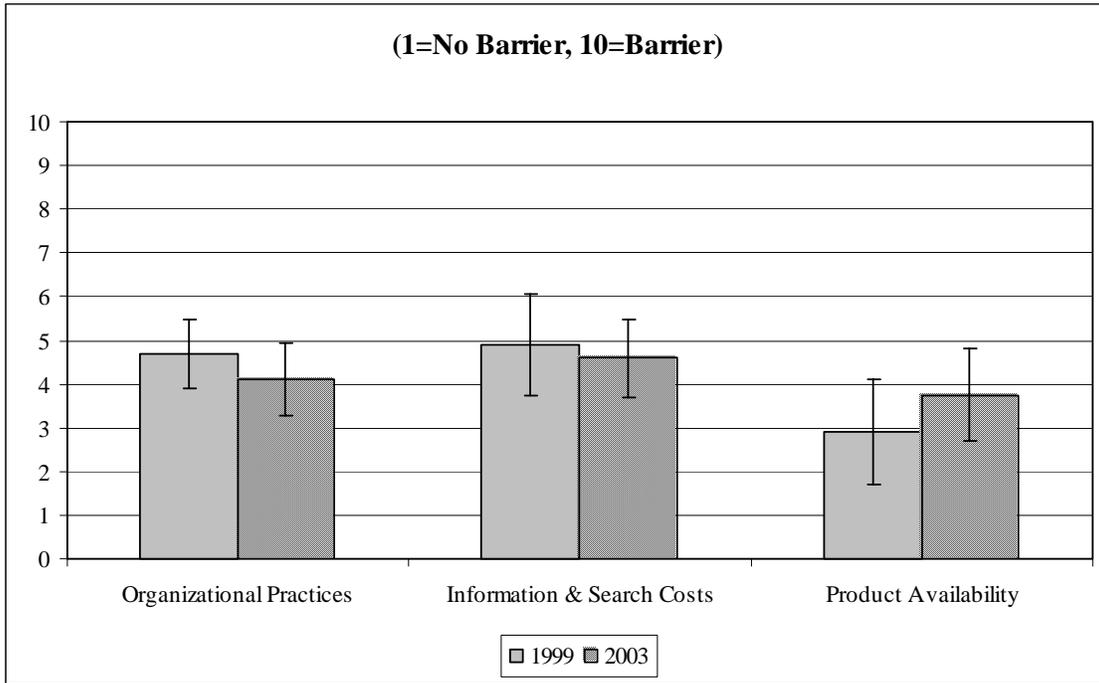
Exhibit 5.57
Average Number of Times Designers Ask Manufacturers about Energy Efficient Equipment



5.1.4.3 Market Barriers

The logic model indicates that changes in behaviors are tied to changes in perceived market barriers. Although the information provided previously shows changes in behavior, the designers did not perceive any change in market barriers as measured by the two studies. Exhibit 5.58 provides the level of the market barriers as perceived by the designers.

Exhibit 5.58
Designer Market Barriers to Energy Efficient Equipment



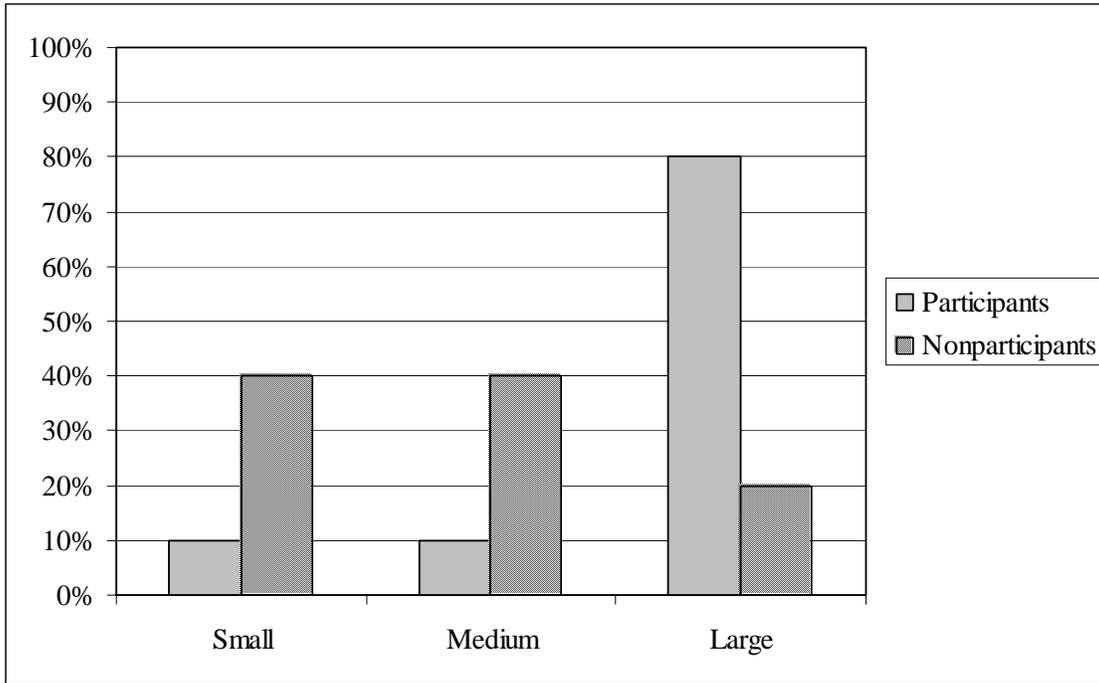
5.1.5 Multi-Unit Specifiers

This group of market actors was new for the 2003 study. Therefore, there are no baseline data from 1999. However, to help determine a baseline and attempt to assess the impact of the FSTC, ten nonparticipating multi-unit specifiers were surveyed in addition to the ten participating multi-unit specifiers. Again, the small samples mean that only trends can be identified. Full responses to survey questions are provided in Appendix E.

5.1.5.1 Firmographics

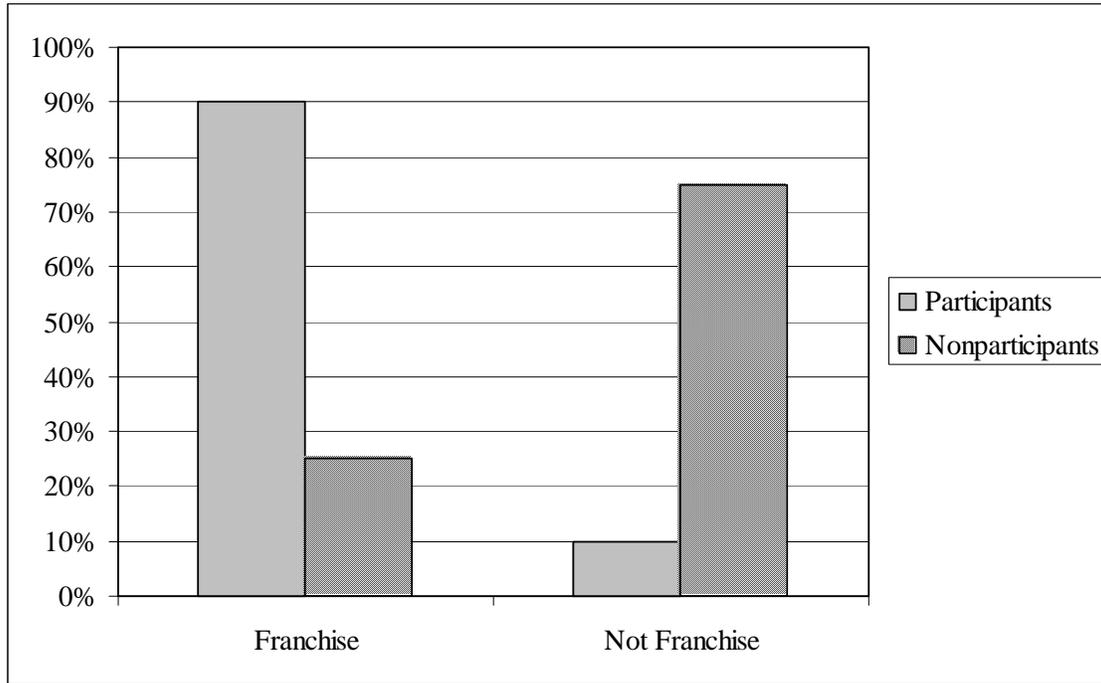
Exhibit 5.59 shows that the participant multi-unit specifiers are large companies compared to the nonparticipant group. This probably influenced the responses to some of the survey questions. In both groups, the survey respondents were mainly directors or managers of the construction or equipment purchasing departments, although other department heads were surveyed.

Exhibit 5.59
Self-Reported Size of Multi-Unit Specifier Companies



Almost of greater interest, though, was whether the company was identified as ‘franchise’ or ‘not franchise’. While ‘franchise’ has a certain definition within the food service industry, for this study, ‘franchise’ is considered a company that showed up as a franchise when searched for on www.franchise.com, www.franchise.org, and by company name if not found on either website. The result of this analysis is shown in Exhibit 5.60. Many of the nonparticipating ‘not franchise’ group consisted of family-owned companies that had multiple restaurants in a particular geographical area or a publicly owned company on the stock market.

Exhibit 5.60
Multi-Unit Companies as Franchise or Not



5.1.5.2 Linkages

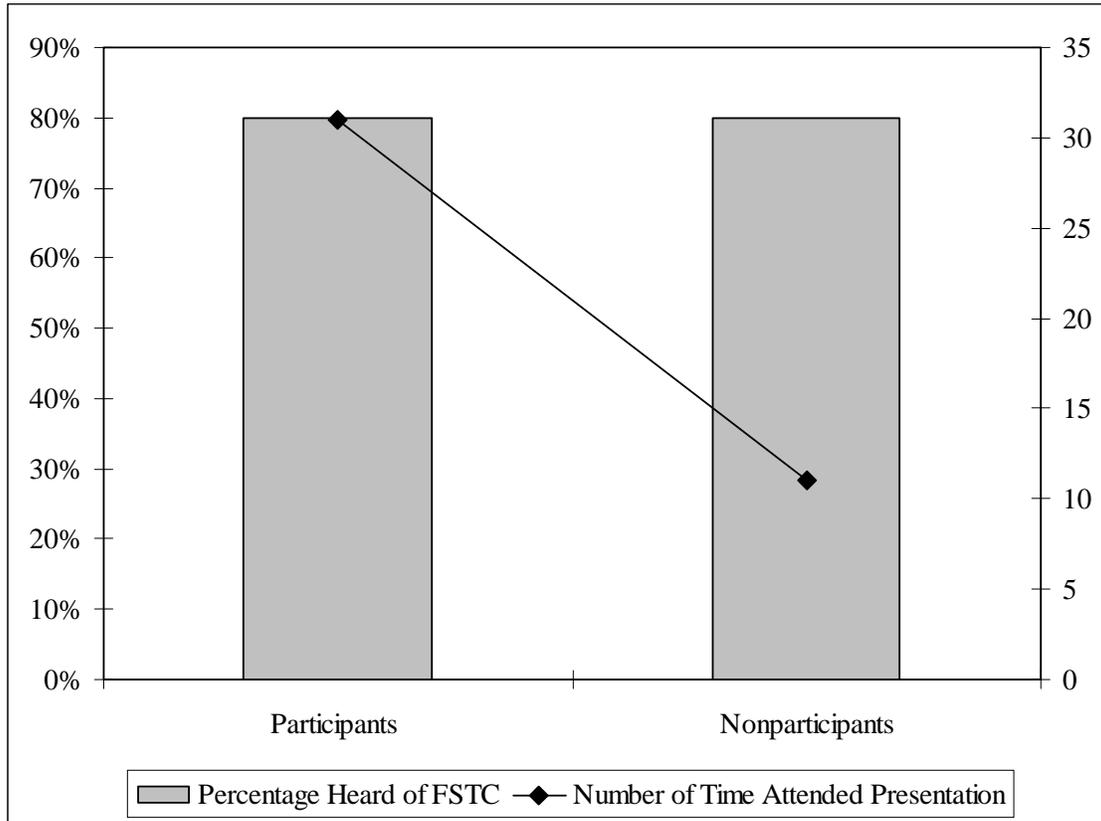
Of the many linkages illustrated in the program theory, the multi-unit specifier questions addressed Linkages #6, #7, #9, #12, #13, #14b, and #20 with a single question sometimes covering multiple links.

Linkage #6 covers the awareness of the FSTC by multi-unit specifiers. There was high recognition of the FSTC in both groups (see Exhibit 5.61). Both participants and nonparticipants identified similar avenues of hearing about the FSTC (i.e., MAECO¹¹, tradeshow, publications). The participants stated they received information on average 8.3 times, whereas the nonparticipants stated they received information an average of 1.8 times.

Exhibit 5.61 is anomalous in that both the participants and the nonparticipants stated they had attended a presentation by the FSTC. A review of all the participants in FSTC seminars from 1999 to July 2003 showed that only one of the nonparticipating companies did actually attend a national seminar. However, the person interviewed was not the person at that seminar. It is unknown why the respondents indicated they had attended an FSTC seminar.

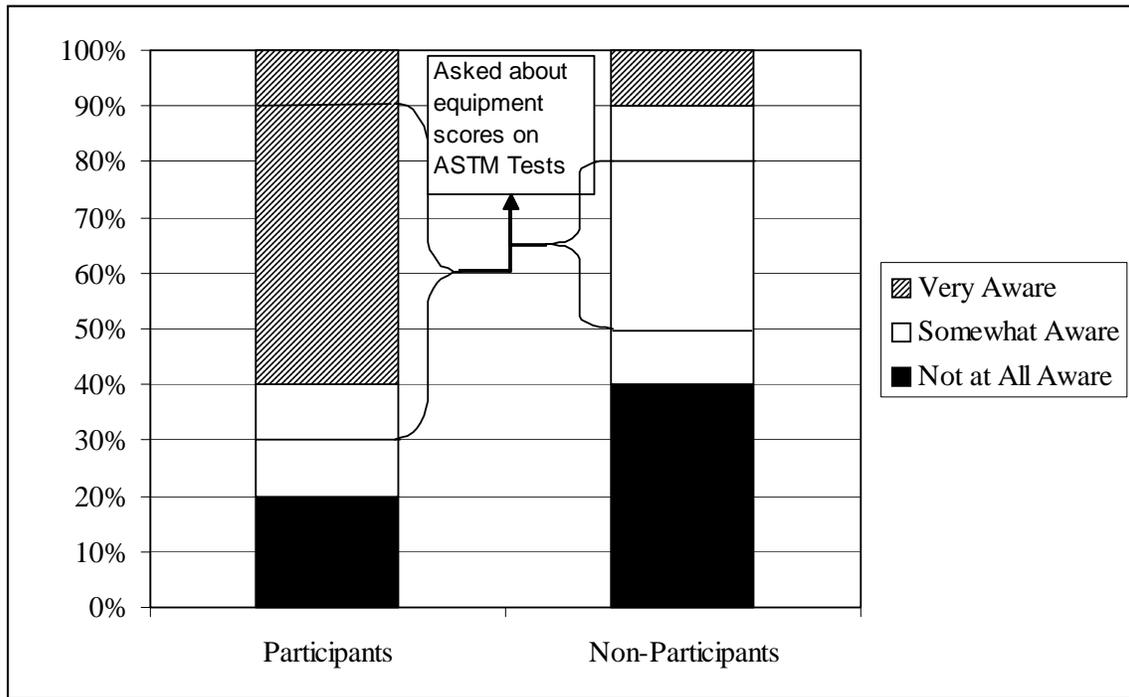
¹¹ MAECO is the Multi-Unit Architects, Engineers, and Construction Officers

Exhibit 5.61
Multi-Unit Specifiers Who Have Heard of FSTC and Attended Presentations



Linkage #13 covers the awareness and use of the ASTM testing methods. FSTC participants were more aware of these tests than their nonparticipant counterparts (Exhibit 5.62). As indicated in Exhibit 5.62, 60% of the participants asked about the scores on the ASTM tests for various pieces of equipment (1 from the somewhat aware group and 5 from the very aware group), while only 30% of the nonparticipants asked about these indicators of energy efficiency (3 from the somewhat aware group).

Exhibit 5.62
Multi-Unit Specifiers Awareness of ATSM Tests Methods



In addition to asking multi-unit specifiers about their awareness of ASTM test and how often they request efficiency rating information, they were also asked what percentage of the time they specify equipment that saves energy (Linkage #14b). Exhibit 5.63 shows that the nonparticipants appear to specify equipment more often than participants. This could be considered an unlikely response, especially when the priority of energy efficiency for both participants and nonparticipants is virtually identical (Exhibit 5.64). The responses to the market barrier questions shed some light on the information in Exhibit 5.63. The market barrier of Split Incentives (Exhibit 5.65) was very different between the two groups, with the participants indicating that this was perceived as a higher barrier than nonparticipants.

It is internally consistent that the participants, who are more often franchise operations that do not actually pay the utility bill, may specify efficient equipment less than nonparticipants who, as non-franchise operations, see the benefit throughout the life-cycle of a piece of equipment. The participants observe that this dichotomy exists in their responses around the Split Incentives market barrier.

It is noted that the multi-unit specifier participants represent some of the largest restaurant companies in the nation with franchises that can be in the thousands. The nonparticipants are smaller chains that tend to be under 100 total stores. Therefore, while the FSTC participants, in terms of percentages, appear to be specifying lower amounts of energy efficient equipment than the nonparticipants, it is very likely that they are actually affecting installations that are magnitudes larger than the nonparticipants.

Exhibit 5.63
Multi-Unit Specifiers' Percentage of Time Specify Efficient Equipment

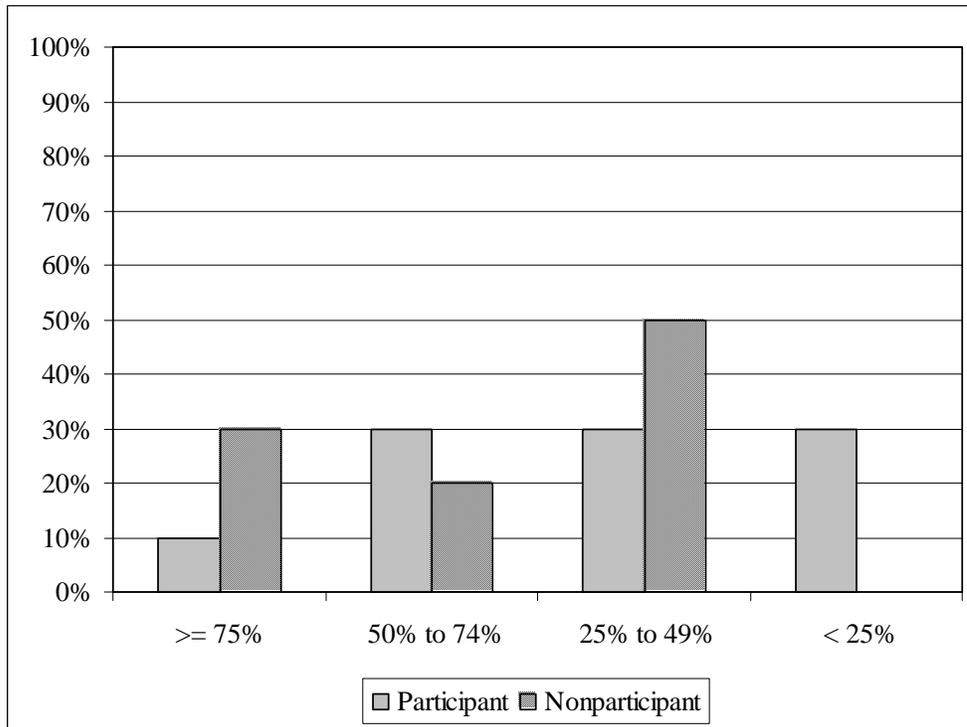
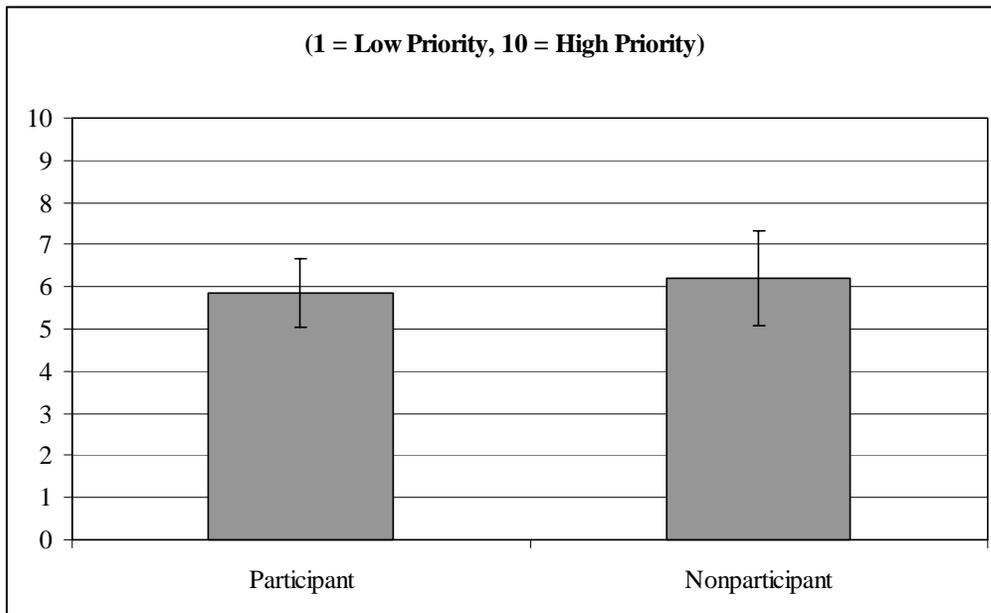


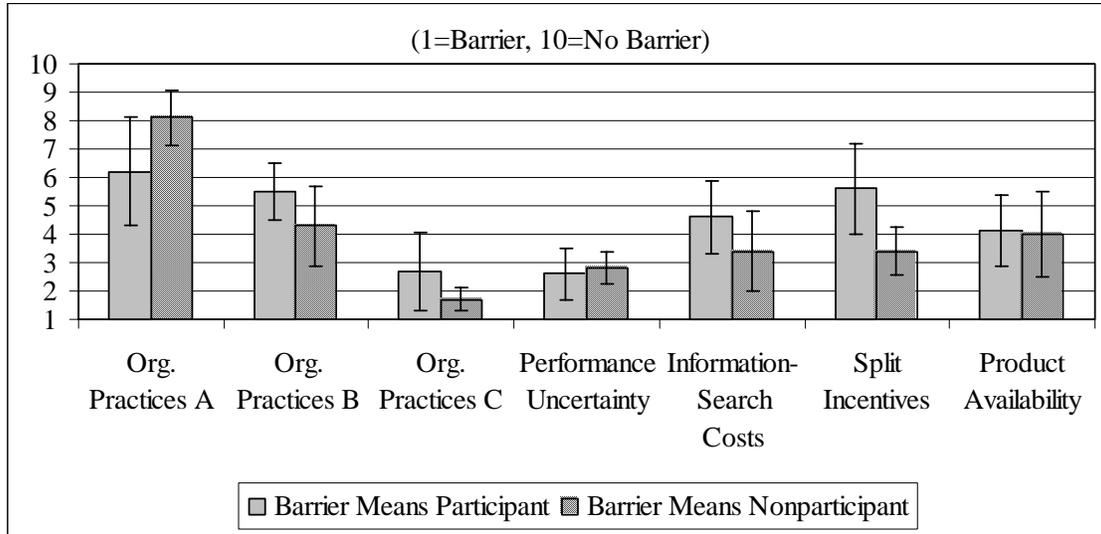
Exhibit 5.64
Multi-Unit Specifiers' Priority for Efficient Equipment



5.1.5.3 Market Barriers

The analysis of market barriers for the multi-unit specifiers indicated differences between the various questions on organizational practices that prevented analyzing this as a single concept. Therefore, the results of the organizational practices market barrier questions are shown in Exhibit 5.65 as three results for this barrier.¹²

Exhibit 5.65
Multi-Unit Specifiers' Market Barriers



Organizational Practices A indicates that both groups believe that keeping costs under control for new equipment is needed, with the nonparticipants seeing this as more of an issue than participants. Both groups think that investing extra money in energy efficiency may or may not reduce their ability to take advantage of other investments (Organizational Practices B), although participants sees this as a slightly higher barrier. Both groups felt that today’s economy calls for being proactive about energy efficiency (Organizational Practices C). Both groups view the Performance Uncertainty and Product Availability barriers similarly while the nonparticipants see both Split Incentives and Information Search Costs to be less of a barrier than participants. None of these differences are statistically different between the two studies.

5.1.6 Hard-to-Reach Cooperative Groups

Overall the FSTC completed 110 site audits for HTR customers, representing 147% of the original HTR goal of 75 site audits set at the beginning of 2002. The Cooperatives interviewed represented over 90% of the audits performed by the FSTC HTR effort.

The following are the key findings that emanated from the interviews:

¹² The Organizational Practices barrier questions for manufacturers and designers were analyzed as a single concept.

- The Cooperative staff felt that the FSTC provided credible, unbiased information and that, as a result, they were well received by the HTR participants.
- Both FSTC and Cooperative respondents felt that follow-up or help with implementation of the measures recommended by the program would have improved the program. They felt that many HTR customers did not have the knowledge or resources to implement the recommendations, and that a program that could assist them in the implementation phase would have delivered more results.
- Both the FSTC and the Cooperatives credited the program with increases in customer awareness of, attitudes toward, and knowledge of energy efficiency. While these changes are not quantifiable because of the small indirect assessment approach, they are one more indicator of the FSTC participant market effects.
- The Cooperatives would have liked a larger FSTC program. They felt that the FSTC was good, but they could have served more customers if the program had more staff available to serve the HTR sector.

While the HTR assessment was never designed to confirm the Program Theory, it did lend support to Linkages #1, #2, #3, #4, and #7. In addition the HTR assessment documented the implementation of the HTR part of the program.

5.2 Measurement of Market Effects

This section covers the measurement of market effects and linking them to market barriers. The results will be presented in terms of the hypotheses presented in Section 3.5. Exhibit 5.66 shows the summary of each of the market effects by hypothesis. Detailed information reinforcing the assessed market effects follows.

Exhibit 5.66
Summary of Market Effects by Hypothesis

Hypothesis	Market Effect				
	No Effect	Weak	Mod- erate	Strong	Unable to Assess
Participants					
#1. FSTC activities will cause participants to experience an increase in awareness toward energy efficient cooking, refrigeration, and ventilation equipment.			✓ x		
#2. The FSTC will reduce market barriers for FSTC participants.		x	✓		
#3.1. FSTC activities will cause participants to increase the extent to which they share information about energy efficient technologies.		✓ x			
#3.2. FSTC activities will cause participants to increase the extent to which they require performance data when assessing products for installation.			✓ x		
#3.3. FSTC activities will cause participants to increase the extent to which they require testing of products using the FSTC test methods.					x
#3.4 FSTC activities will cause participants to increase the extent to which they purchase energy efficient equipment.			✓ x		
Nonparticipants					
#4.1. FSTC activities will cause nonparticipants to increase the extent to which they share information about energy efficient technologies.	x				
#4.2. FSTC activities will cause nonparticipants to increase the extent to which they require performance data when assessing products for installation.	x				✓
#4.3. FSTC activities will cause nonparticipants to increase the extent to which they require testing of products using the FSTC test methods.	x				
#4.4. FSTC activities will cause nonparticipants to increase the extent to which they purchase energy efficient equipment.	x				✓
Manufacturers					
#5.1. The FSTC will reduce market barriers for manufacturers, leading to an increase in the extent to which they use FSTC test data.	x				✓

Hypothesis	Market Effect ✓=1999 Study ✗ = 2003 Study				
	No Effect	Weak	Mod-erate	Strong	Unable to Assess
#5.2. The FSTC will reduce market barriers for manufacturers, leading to an increase in the extent to which they use standardized test methods to develop new equipment.	✗	✓			
Designers					
#6.1. The FSTC will reduce market barriers, leading to an increase in the extent to which designers request performance data		✓ ✗			
#6.2. The FSTC will reduce market barriers, leading to an increase in the extent to which designers recommend energy efficient equipment		✗			✓
#6.3. The FSTC will reduce market barriers, leading to an increase in the extent to which designers share information on energy efficient equipment					✗
Multi-Unit Specifiers					
#7.1. The FSTC will reduce market barriers, leading to an increase in the extent to which multi-unit specifiers request performance data			✗		
#7.2. The FSTC will reduce market barriers, leading to an increase in the extent to which multi-unit specifiers specify energy efficient equipment					✗
Sustainability					
#8. Any observed market effects attributable to the FSTC are sustainable.				✗	

5.2.1 Hypothesis #1: Awareness and Attitude

The first hypothesis being tested is whether or not the FSTC impacts those who attend an FSTC activity by increasing their attitude, knowledge or awareness of energy efficient equipment (Linkage #1). Testing this hypothesis was done in two ways. The first method compared responses of FSTC participants to the general nonparticipant population on a series of questions concerning attitudes towards energy efficiency and awareness of performance testing methods. The second method involved comparing participants' responses about seeking out additional information or training on the topics they learned about at the FSTC and their use of these FSTC concepts before versus after attending an FSTC activity.

5.2.1.1 Attitude

To determine the impact of the FSTC on attitudes towards energy efficiency, participants and nonparticipants were asked to rank, on a scale of 1 to 10, a series of five statements regarding the importance of energy efficiency and conservation to their company. An analysis was performed that compared the mean scores of the FSTC participants to those of the nonparticipants for the 2003 survey. These mean scores, along with the 95% confidence intervals and significant tests results, are presented in Exhibit 5.67. Similar analyses were performed on the differences between participants and nonparticipants from the 1999 and 2003 studies. These results were presented earlier in Sections 5.1.1.1 and 5.1.2.1.

**Exhibit 5.67
2003 Mean Attitude Scores for FSTC Participants and Nonparticipants by Statement**

Attitudes Toward Energy Efficiency	2003				95% Level Significantly Different
	Participants		Nonparticipants		
	MEAN	95% CL (+/-)	MEAN	95% CL (+/-)	
Improving EE to Reduce Operating Costs	8.74	0.39	8.32	0.47	No
Improving EE to Protect the enviroment	7.93	0.52	7.84	0.59	No
Energy concerns compared to others concerns	7.13	0.49	7.45	0.50	No
Recycling more to reduce costs	7.03	0.67	6.88	0.69	No
Recycling more to protect environment	7.71	0.59	7.42	0.64	No
Average of all Above	7.71	0.34	7.60	0.39	No

Exhibit 5.67 shows that there is no significant difference between the participants and the nonparticipants based on the 2003 study.

Exhibit 5.68 below compares the mean response score across all of the attitude statements in 1999 and 2003 for participants versus end users.

**Exhibit 5.68
Attitude Scores for FSTC Participants and Nonparticipants for 1999 versus 2003**

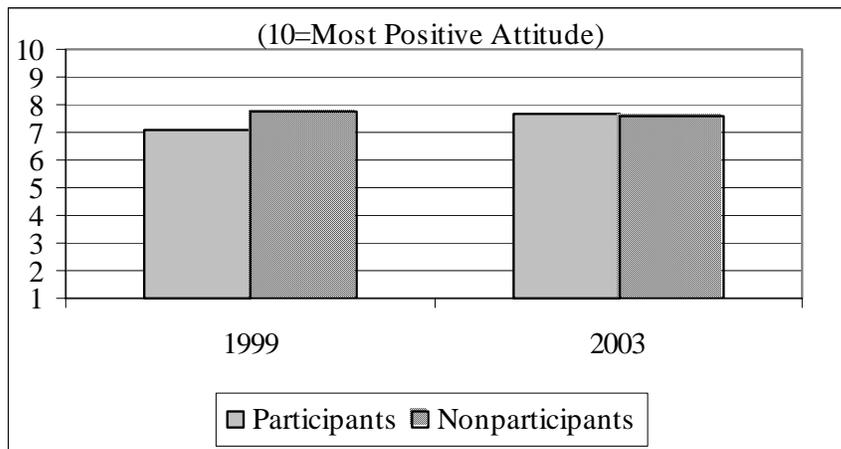
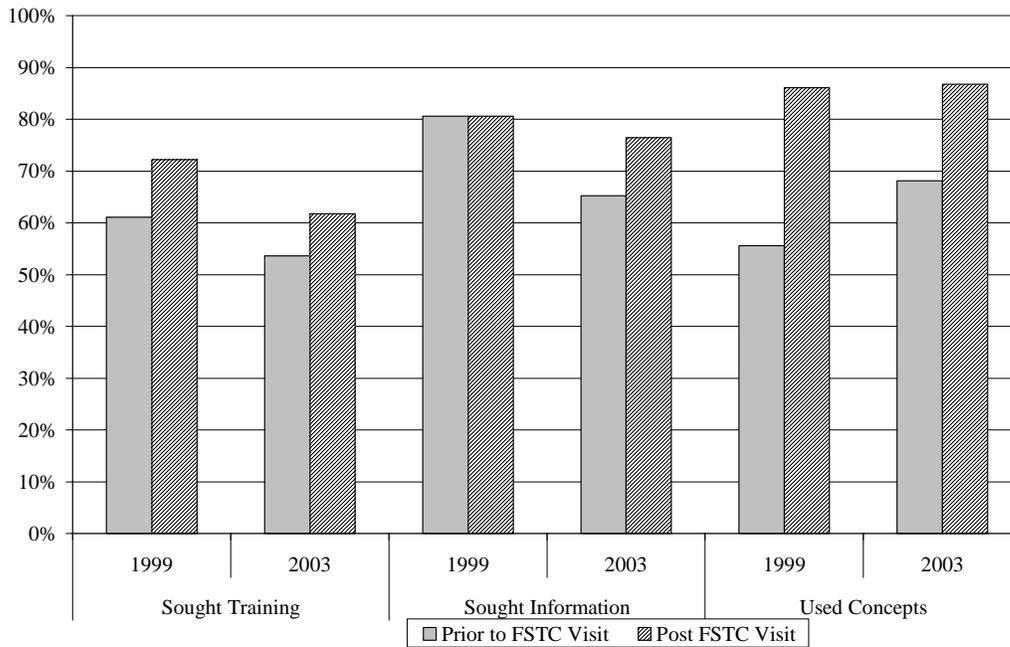


Exhibit 5.68 shows that in 1999, nonparticipants' mean response score over all of the attitude statements was higher than the comparable score for the participants. Drilling down into the individual statements showed that the mean response scores were higher than the participants' scores across all of the statements, and all but two of these differences were significant at the 95% level (one of those two was significant at the 90% level). In 2003 the mean scores are much closer with the participants' score being insignificantly higher.

5.2.1.2 Knowledge

Exhibit 5.69 illustrates that, since attending an FSTC activity, there has been a large increase in participants seeking training, information and using the concepts learned at the center. Over 50% of participants also say they have talked with personnel or visited sites where the technologies related to what they learned at the center were being used. However, the most significant impact of the center has been the percentage of participants who have actually used some of the concepts/technologies since they learned about them (up 27% from 68% to 86.8%).

**Exhibit 5.69
Knowledge Prior and Since FSTC Interaction**



The differences seen pre- and post-FSTC interaction were analyzed for significance using Wilcoxon sum-rank tests and chi-squared statistics, and the results revealed that only the increase in the percentage of participants using the concepts and/or technologies is statistically significant.

5.2.1.3 Awareness

Two questions were asked to gauge the impact of the FSTC on participants' awareness of energy efficient equipment. The two questions: 'Have you ever heard of the American Society for Testing and Materials (ASTM)?' and 'How aware are you of the standard test methods adopted by the ASTM?' were asked of both participants and nonparticipant end users. The responses to the questions are presented in Exhibit 5.70 and Exhibit 5.71.

Exhibit 5.70
Percentage Who have Heard of the ASTM

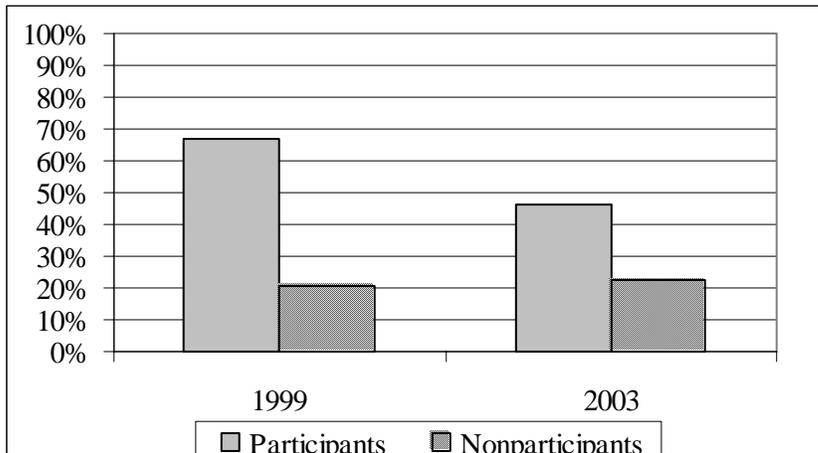
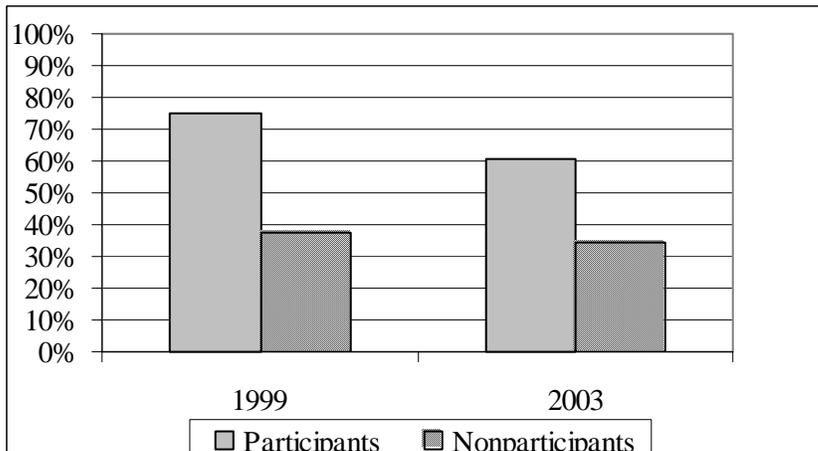


Exhibit 5.71
Percentage Who Were Aware of ASTM Test Methods



These exhibits show that the FSTC does increase awareness of the ASTM and its test methods. In 2003, 46% of the participants reported hearing of the ASTM, while only 22% of the nonparticipants reported they had heard of it. Additionally, 61% of the participants had some awareness of the standard test methods adopted by the ASTM compared to only 34% of the nonparticipant population. A series of chi-squared tests run on these responses proved that, based on the 2003 study, individuals who had

attended an FSTC activity were statistically significantly more likely to have heard of the ASTM and the standard test methods (p-values of 0.0018 for both questions). The strength of the association based on the calculated contingency coefficients was relatively weak (0.2518 and 0.2874, respectively). Additionally, it is interesting to note from these exhibits that the percentage of participants who have heard of the ASTM, as well as those aware of the standard test methods, is lower in 2003 than it was in 1999 (47%/58% in 2003 vs. 66%/77% in 1999). Significance tests were also performed on these relationships and the results showed that the changes between participants in 1999 and 2003 were significant for both of the questions, but the changes between participants and nonparticipants were not significant for either question. A regression was run to determine what other factors besides the FSTC would significantly increase the chance that an individual had heard of the ASTM. The results of the regression showed that large restaurants were much more likely to have heard of the ASTM and, as a result, one can conclude that this drop between participants in 1999 and 2003 is more a function of there being fewer large customers in the 2003 participants survey and less a function of the FSTC program itself.

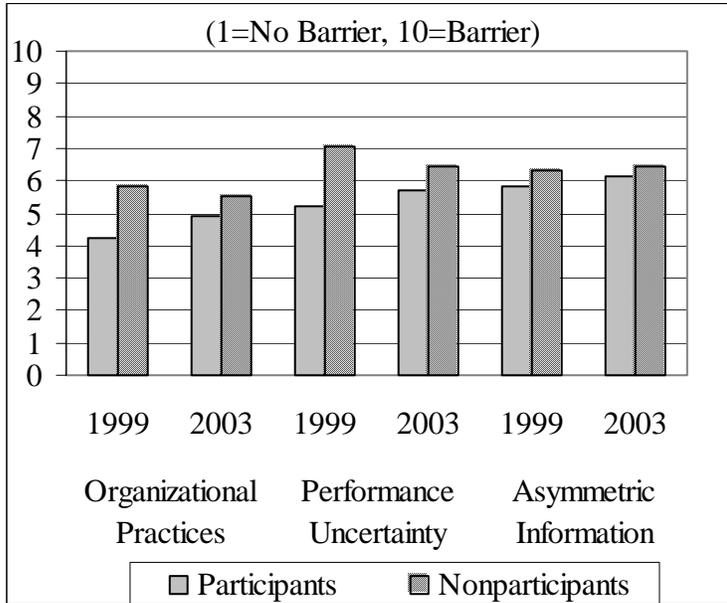
Conclusion: Hypothesis #1 Overall, the results of the 2003 study were similar to the results from 1999. The results presented above indicate that the FSTC has had a moderate market effect on participants' knowledge and awareness of energy efficient equipment demonstrated by the increase in participants' knowledge of energy efficient equipment and awareness of the ASTM and the ASTM test methods. Attitudes toward energy efficient equipment showed no significant differences between FSTC participants and nonparticipants in 2003.

5.2.2 Hypothesis #2: Market Barriers

The second hypothesis is that the FSTC will reduce selected market barriers for those who have attended an FSTC activity. In 1999, five market barriers were analyzed and the results showed that three of the five market barriers (Organization Practices, Performance Uncertainty, Asymmetric Information) were significantly more likely to be viewed as market barriers by nonparticipants than by participants. In 2003 the same market barrier questions were asked of both participants and nonparticipants and reanalyzed. The means scores on the three significant market barriers for both 1999 and 2003 are presented in Exhibit 5.72.

Exhibit 5.72

**Participant and Nonparticipant Market Barrier Perceptions, 1999 vs. 2003
Organizational Practices, Performance Uncertainty, and Asymmetric Information**



In 2003, significance tests conducted between the participants and the nonparticipants concluded that only one of these three market barriers (Performance Uncertainty) had a significant difference between the two groups. Further analysis was conducted to determine why Asymmetric Information and Organizational Practices were no longer significant.

A few changes were made in the analytical methodology used for the study between 1999 and 2003. One change concerned how missing data were handled. In 1999 missing data were backfilled using data from other cases with a similar response pattern over a set of variables. This was not done in 2003 since missing data generally did not occur. In some instances survey respondents refused to answer questions or answered 'I Don't Know'. However, these should not be classified as missing data and backfilled; rather they should be excluded from the particular analysis. The 1999 data were re-evaluated under this new methodology so that fair comparisons could be made to the 2003 analysis. The results no longer showed a significant difference in the perception participants versus nonparticipants had regarding Asymmetric Information as a market barrier for the 1999 data. From Exhibit 5.72 one can see that the change in the Asymmetric Information barrier for both participants and nonparticipants between the two studied years was very minimal and thus, regardless of whether or not there was a change in significance, the overall perception of this barrier is nearly identical to what it was in 1999.

A comparison between FSTC participants in 1999 and 2003 showed that the difference in their perceptions of Organizational Practices as a market barrier was significant at the 95% level based on a chi-squared statistic. The 2003 participants perceived it as more of a market barrier than the participant group from 1999. The nonparticipants in 2003 saw Organizational Practices as less of a market barrier than the 1999 nonparticipant

end users, although not significantly less. As a result of these two shifts, the difference between participant and nonparticipant perceptions of Organizational Practices as a market barrier in 2003 was no longer significantly different, as it had been in 1999. Additional analysis was performed to identify the reasons these shifts occurred. Regression models run on both the Participant 1999-to-2003 relationship and the 2003 Participant-to-Nonparticipant relationship showed that there was a strong correlation between a customer's size (large versus not large) and their perception of Organizational Practices as a market barrier. The relationship that was significant in both models indicated the larger the customer the less of a market barrier Organizational Practices seems to be. In 1999, 50% of the FSTC participants classified themselves as large as compared to 26% of the participants in 2003 and 8% of the nonparticipants in 2003. In the 1999-to-2003 participant comparison, the year indicator was also significant at the 90% level, indicating that not all of the increase between participants can be attributed to the difference in customer size between the two studies. However, for the 2003 participant-to-nonparticipant comparison the FSTC participation variable was not significant and the large size variable was highly significant.

Another point of interest from the analysis was that for nonparticipant end users, Performance Uncertainty was viewed as significantly less of a market barrier than it had been in 1999. This may be a sign that the baseline is decreasing and may be an indirect market effect attributable to the center.

Exhibit 5.73
Participant and Nonparticipant Market Barrier Perceptions, 1999 vs. 2003
Split Incentives and Information Search Costs

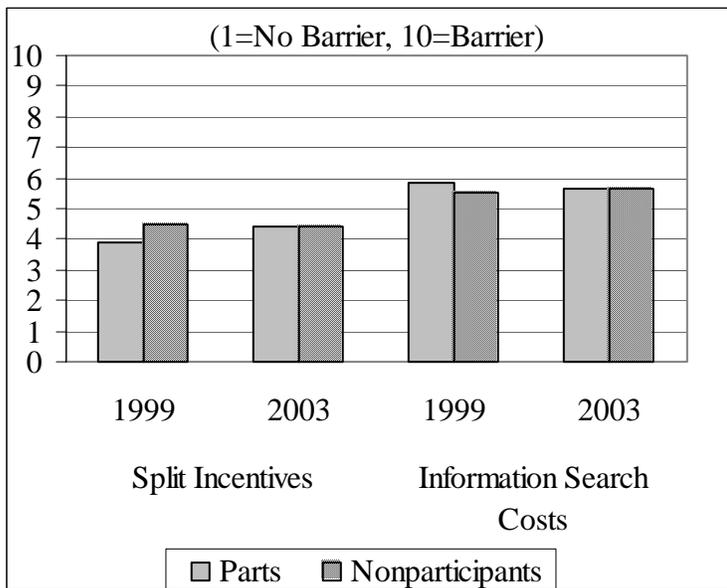


Exhibit 5.73 shows that there was little difference between perceptions of the Split or Misplaced Incentives and Information Search Costs barriers for participants or nonparticipants in either 1999 or 2003. All differences shown are not statistically significant.

A new question was added in 2003 to determine if any additional market barriers had arisen since 1999. The new question asked about what factor might keep the survey respondent from purchasing energy efficient equipment. The overwhelming majority of responders from both participants and nonparticipants stated the biggest factor was ‘Cost’. The next largest was ‘Durability/Reliability’ followed by ‘Nothing’. The complete results are in Exhibit 5.74.

**Exhibit 5.74
Additional Factors Keeping Individual from Purchasing Energy Efficient Equipment**

	Participants		Nonparticipants	
Cost	45	66%	60	79%
Availability	6	9%	3	4%
Company Rules	2	3%	2	3%
Performance Uncert	8	12%	4	5%
Durability/Reliability	19	28%	14	18%
Knowledge	2	3%	4	5%
Energy Conservation	1	1%	3	4%
Need	2	3%	3	4%
Size/Fit	8	12%	2	3%
Brand	0	0%	2	3%
Nothing	8	12%	9	12%
Asymmetric Information	0	0%	2	3%

Most of the factors keeping survey respondents from purchasing energy efficient equipment could be grouped under one of the existing market barriers. For the most part the only factors not already analyzed were factors such as ‘Cost’, ‘Size/Fit’, ‘Need’ and ‘Brand’ that the FSTC cannot do much to influence. The exception to this is Availability, which the participants seem to think of as more of a market barrier, but not significantly. At this time, based on the survey results, there is not enough information on this barrier for an analysis but the FSTC may want to include this in future studies.

Conclusion: Hypothesis #2 Based on the results presented above one can conclude that in 2003 the FSTC had a weak-to-moderate market effect on the participants in reducing perceived market barriers. This is reduced from the moderate market effect claimed in 1999; however, changes in the market barriers between 1999 and 2003 participants appear to be caused by sample distribution variances and further confounded by changes in analysis methodology between the two study years.

5.2.3 Hypothesis #3: Sharing Information, Requiring Performance Data and Purchase Behavior of FSTC Participants

The third hypothesis to be analyzed was whether FSTC activities cause participants to increase the extent to which they 1) share information regarding energy efficient technologies, 2) require performance data and require testing of products using the

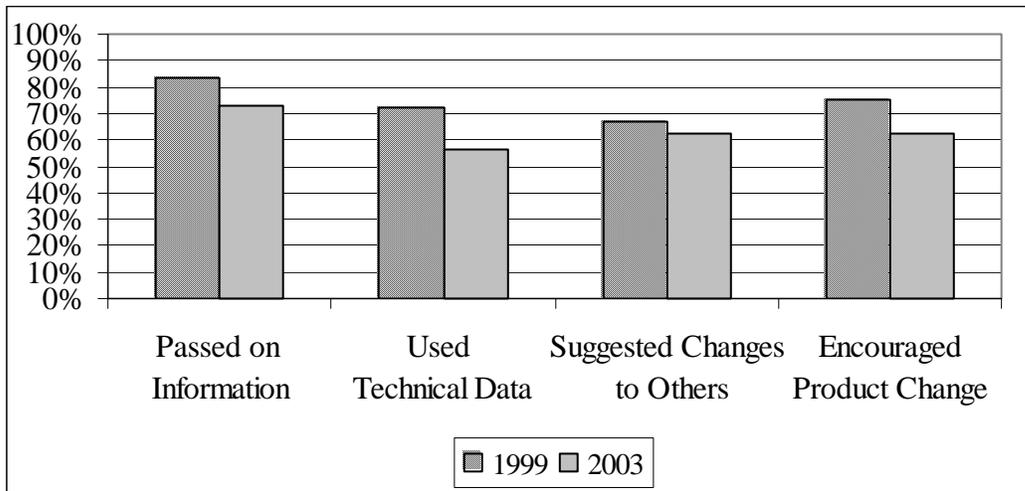
FSTC test methods to evaluate competing products and 3) purchase energy efficient equipment.

The first part of this hypothesis, sharing information, was tested using two approaches. The first focused on questions regarding the frequency with which FSTC participants conducted various activities using information they obtained from the FSTC. The second approach involved comparing participants to nonparticipants with respect to how often they shared ideas about energy efficiency with colleagues and the use of these ideas in promoting changes to internal policies and practices. The analysis performed on these questions was similar to what was done in 1999. However, in 2003 the responses were analyzed as ordinal scales (Never, Rarely, Sometimes, Frequently) rather than exact quantities (0-200 times). The analysis of these questions included calculating chi-squared statistics and running regressions to control for and quantify the effects of additional firmographic differences between the populations being analyzed.

Exhibit 5.75 below shows the percentage of participants who have:

- 1) Passed on material obtained at the center to others,
- 2) Used technical data from the center to support a decision,
- 3) Suggested or insisted that a partner or contractor incorporate ideas learned at the center, and
- 4) Discussed ideas presented at the center with a manufacturer or manufacturer’s representative to encourage a product change.

Exhibit 5.75
Participants who have Shared Information with Others



*In 1999 participants were forced to give a number for the response to this series of questions. In 2003 the answers were not always given in this format. As a result a scale was created to make the two years comparable. The scale is defined as follows: Never = 0, Rarely = 1-3 times, Sometimes = 4 – 7 times and Frequently = 8 or more times.

Exhibit 5.75 shows that in 2003 nearly 75% of individuals who attended an FSTC activity passed on information they obtained to others (and nearly 30% of these claim to do it frequently), more than half have used technical data from the center to support a decision and 63% have suggested changes to others based on items they learned at the center. Significance tests performed to evaluate the drops showed the only significant decrease occurred for ‘encouraged a product change’. A regression was run to

determine what other factors could be responsible for this decrease and again it indicated that large organizations are much more likely to encourage a product change than smaller organizations. Although these results may seem disconcerting since they indicate in 2003 that participants are less likely to share information via these four channels, it is important to remember the difference in the composition and contact method between the participant samples in 1999 and 2003. These changes are most likely responsible for the minor decreases seen in 2003.

Exhibit 5.76
Participants vs. Nonparticipants who have Shared Information with Colleagues

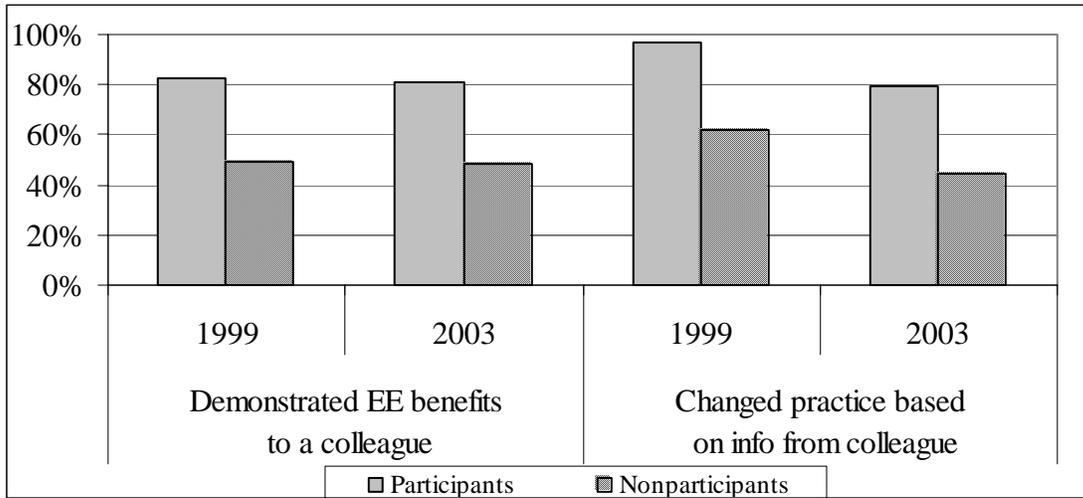


Exhibit 5.76 compares the percentage of participants versus nonparticipants who have shared ideas with colleagues in 1999 and 2003. The large observed differences are all highly significant and thus one can conclude that the FSTC has played a major role in getting participants to share information on energy efficiency topics with their colleagues.

The responses for each question were also analyzed for participants and nonparticipants across years to determine if any changes in the baseline or the participants’ behaviors had occurred. Of the four relationships analyzed only one, the percentage of nonparticipants who changed a practice based on information from a colleague, had significantly changed between 1999 and 2003.

The second part of this hypothesis, assessing the impact the FSTC has on participants and nonparticipants requiring performance data when making decisions about products for installation, was analyzed using a series of questions asked of both participants and end users. The questions captured the frequency with which they asked their dealer, manufacturer, sales representative or designer about equipment that saves energy. In 1999 the questions asked specifically about cooking, refrigeration and ventilation equipment. In 2003, three additional questions were added to capture the impact for lighting, heating/AC and water heating. The results are presented in Exhibit 5.77 and Exhibit 5.78.

Exhibit 5.77
Request for Performance Data for Cooking, Refrigeration, and Ventilation Equipment

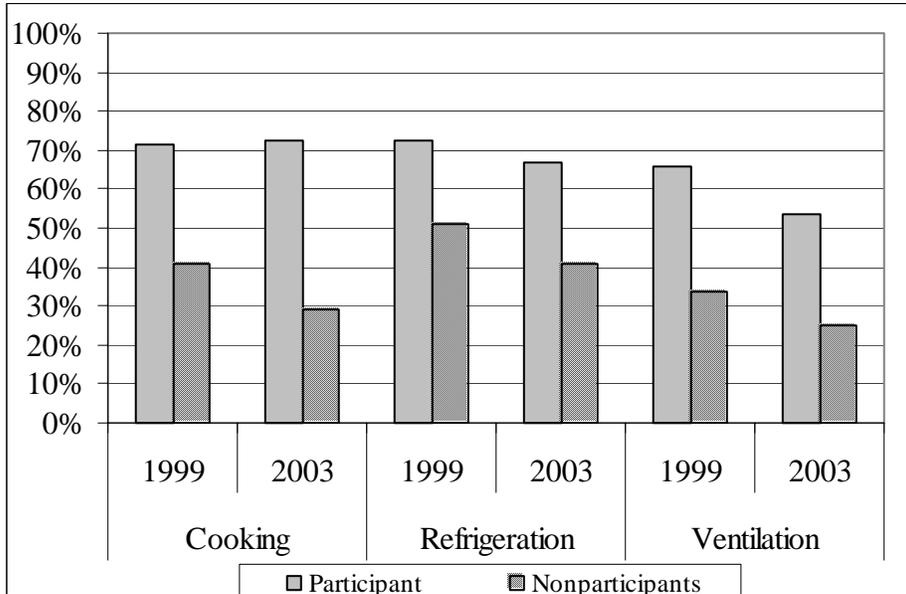
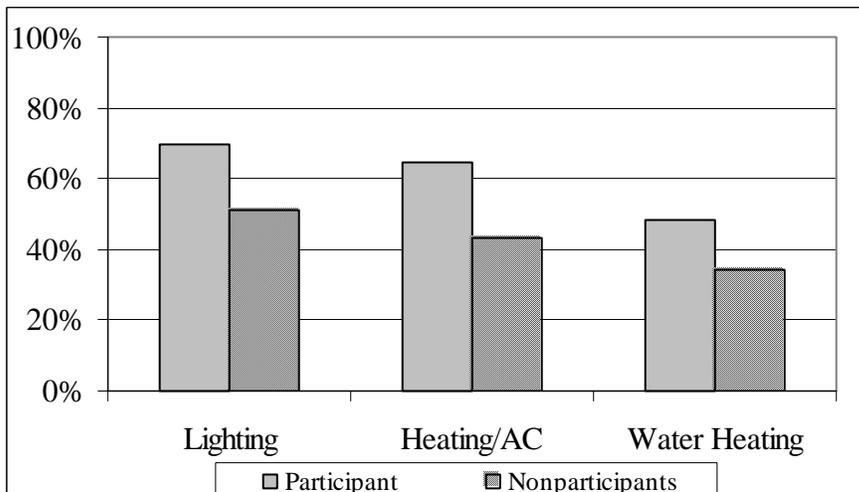


Exhibit 5.78
Request for Performance Data for Lighting, HVAC, and Water Heating Equipment

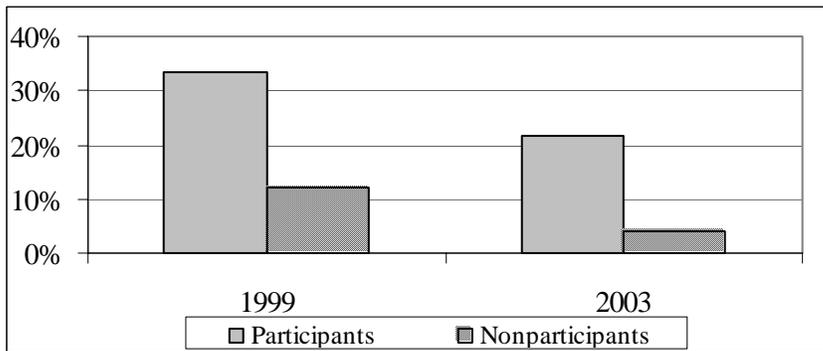


Both of these exhibits show that, regardless of the specific end use or analysis year, the participants were always more likely to request performance data. The significance tests conducted found all differences presented in Exhibit 5.77 and Exhibit 5.78 to be statistically significant at the 95% level with the exception of water heating (which was only significant at the 89% level). The strongest relationship, as measured by the contingency coefficient, was for cooking equipment (CC value = 0.4050). Although Exhibit 5.78 appears to indicate that there has been a slight decline between 1999 and

2003 in the percentage of participants and nonparticipants who have requested performance data, significance tests found that these drops were not significant.

In order to gauge the importance of test results prior to purchasing equipment both participants and nonparticipants were asked whether or not they had ever asked their dealer or manufacturer's representative about how specific pieces of equipment scored on performance tests (based on the standard testing methods) prior to purchase. This question was only asked of nonparticipants who were aware of the standard test methods adopted by the ASTM. All those not asked because they were unaware of the test methods were classified as 'No's'. The percentage of respondents who have asked how equipment scored using the ASTM standard test methods is presented in Exhibit 5.79 below.

Exhibit 5.79
Percentage of Participants and Nonparticipants who have asked how Equipment Scored on ASTM Test Methods before Purchasing.



Analysis performed on this question found that the large differences that can be seen between the participants and nonparticipants in 1999 and 2003 were highly significant. Additionally, although both participants and nonparticipants seemed to be less likely to ask about test results in 2003 than they were in 1999. Based on chi-squared statistics these differences were not significant.

The third and final part of this hypothesis is that FSTC activities will cause participants to increase the extent to which they purchase energy efficient equipment. This hypothesis was tested using two approaches. The first used self-reports from participants and nonparticipants concerning their intentions to purchase energy efficient equipment. The second approach involved comparing actual purchases made by participant versus nonparticipant end users.

In 1999 three questions were asked regarding intentions to purchase energy efficient equipment for cooking, refrigeration and ventilation end uses. In 2003 additional questions were added to include lighting, HVAC and water heating end uses as well. Respondents were asked to classify the efficiency of their purchase intentions as standard, above average or very high efficiency. Above average and very high efficiency intentions were combined in Exhibit 5.80 and Exhibit 5.81 below for tabulation purposes; however, all the analysis and significance tests were conducted keeping all three levels of efficiency intact.

Exhibit 5.80
Percentage Intending to Purchase Energy Efficient Cooking, Refrigeration, or Ventilation Equipment

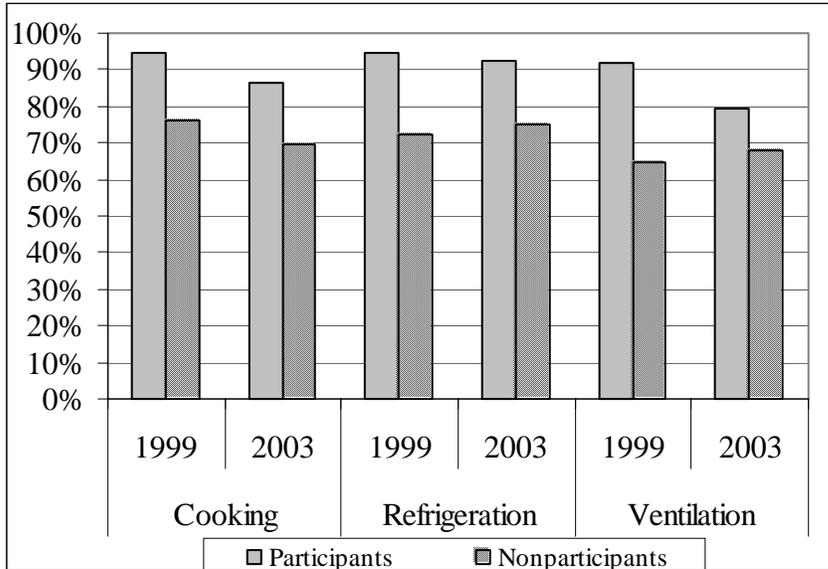


Exhibit 5.80 illustrates that in 1999 and again in 2003 participants were much more likely to purchase energy efficient equipment. Additionally it shows very little difference between participants' or nonparticipants' intentions to purchase energy efficient equipment for the three stated end uses from 1999 to 2003. This indicates that the baseline is neither increasing nor decreasing. All of these relationships were substantiated using chi-squared statistics at the 95% confidence level with the exception of the difference in intended ventilation purchases between participants and nonparticipants in 2003 (which was significant at the 90% level). Regression models were run for the participant to nonparticipant comparisons to control for differences in the make up of these populations and all differences remained significant.

Exhibit 5.81
Percentage Intending to Purchase Energy Efficient Lighting, Heating/AC, or Water Heating Equipment

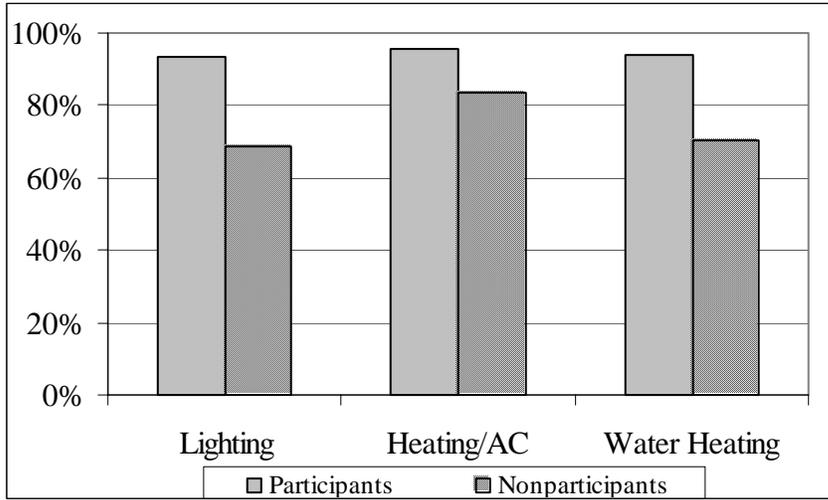


Exhibit 5.81 shows that FSTC participants have greater intentions of purchasing high efficiency lighting, HVAC and water heating equipment. Participants were 36% more likely to purchase efficient lighting equipment and 34% more likely to purchase efficient water heating equipment. The observed difference in intentions between participants and nonparticipants was statistically significant at the 95% level for lighting and water heating equipment. However, the HVAC end use was only significant at a little less than 90%.

Based on a series of new questions added in 2003, comparisons can now be made between participants and nonparticipants regarding actual purchases for some end uses. For participants it is also possible to evaluate the influence the FSTC had on these purchases. The purchase behavior questions were asked for lighting, HVAC and water heating end uses with the results presented in Exhibit 5.82 below.

Exhibit 5.82

Percentage of Participants/Nonparticipants Who Purchased Efficient Equipment and the Influence of the FSTC (for Participants Only)

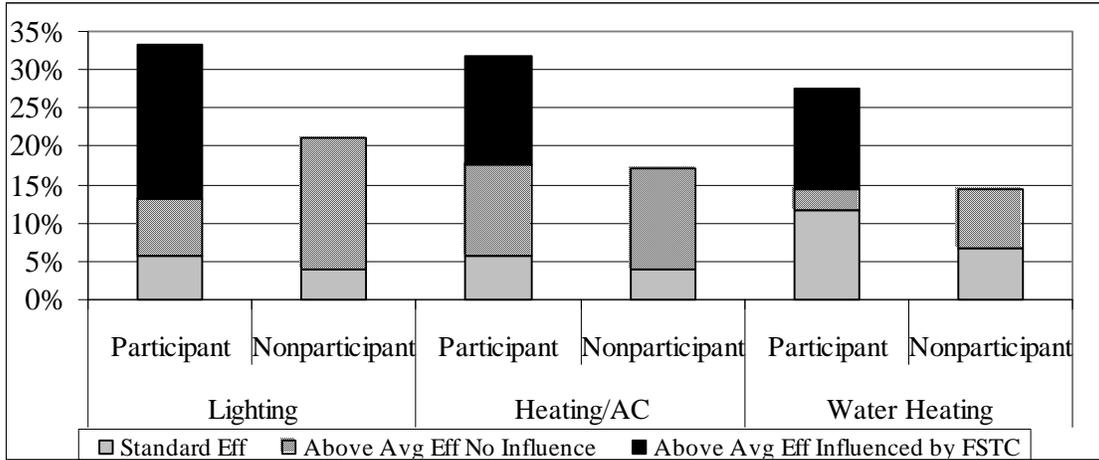


Exhibit 5.82 clearly illustrates two very important findings. The first finding was that FSTC participants purchased nearly twice the amount of high efficiency equipment as nonparticipants purchased. The second finding was that FSTC participants reported being highly influenced by the FSTC to make those high efficiency purchases. These findings are very important since they illustrate the FSTC is succeeding at their most basic goal, influencing the people they come in contact with to purchase high efficiency equipment.

Conclusion: Hypothesis #3 Based on the results presented above one can conclude that the FSTC continues to have a moderate market effect on purchasing of energy-efficient equipment, requiring performance data and sharing information.

5.2.4 Hypothesis #4: Sharing Information, Requiring Performance Data and Purchase Behavior of Nonparticipants

The fourth hypothesis is whether FSTC activities cause nonparticipants to increase the extent to which they 1) share information regarding energy efficient technologies, 2) require performance data and require testing of products using the FSTC test methods to evaluate competing products and 3) purchase energy efficient equipment. This is similar to the third hypothesis but from the perspective of the nonparticipant end user.

Reviewing the analysis presented for Hypothesis 3 one can take away the following with respect to nonparticipants in 1999 versus 2003:

- 1) Sharing Information: Nonparticipants in 2003 were significantly less likely to change a practice based on information from a colleague (Exhibit 5.76). A regression run to determine the cause of this decline found that having less than 10 employees was the only variable that was significantly correlated to the frequency with which nonparticipants changed a practice based on information from a colleague. (i.e., less employees indicated less likely to share information). The nonparticipant population in 2003 was composed of more

- restaurants having less than 10 employees, which thus is responsible for the decrease in the amount of information being shared in 2003.
- 2) Requiring Performance Data: Although nonparticipants in 2003 seemed less likely to request performance data for cooking, refrigeration and ventilation equipment, the observed changes were not statistically significant (Exhibit 5.77).
 - 3) Product testing using FSTC test methods: Nonparticipants in 2003 reported asking less frequently about how equipment scored on ASTM test methods prior to purchasing; however, the differences were not statistically significant based on chi-squared statistics (Exhibit 5.79), and
 - 4) Purchase Intentions: For refrigeration and ventilation equipment nonparticipants' intentions to purchase energy efficient equipment increased from 1999 to 2003, but decreased for cooking equipment. None of these shifts were statistically significant (Exhibit 5.80).

Conclusion: Hypothesis #4 Based on these results one can conclude that the FSTC has had no discernable effect on nonparticipants in terms of sharing information, stated purchase intentions, requiring performance data, or requiring testing of products using FSTC developed test methods.

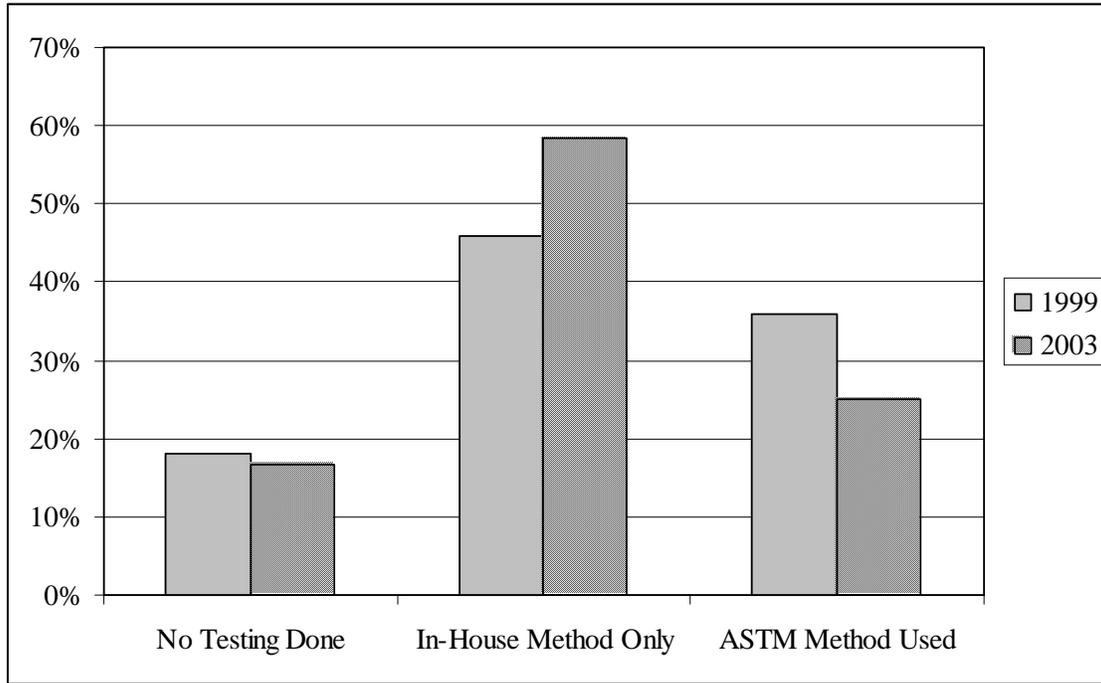
The only market effect seen for the nonparticipants was a significant reduction in Performance Uncertainty as a market barrier for the nonparticipants between 1999 and 2003 (displayed in Exhibit 5.37). This was considered to be a weak market effect. When one considers the lack of additional market effects one needs to keep in mind that only four years have passed since the last study occurred and, because of the large population of California restaurants, it would be very difficult to effect any change in such a short period of time.

5.2.5 Hypothesis #5: Manufacturers

The fifth hypothesis revolved around the manufacturers and changes seen in their behaviors. The hypothesis states: the FSTC will reduce market barriers for manufacturers, leading to an increase in the extent to which they: 1) use FSTC test data and 2) use standardized test methods to develop new equipment.

Only the cooking manufacturers were queried about the use of test data and using standardized test methods to develop new equipment, since cooking is the only area for which the FSTC has developed test procedures. Exhibit 5.83 has some variation between the two study years, but due to small sample size, no statistical conclusions can be drawn from this data.

Exhibit 5.83
Efficiency Testing Used



Conclusion: Hypothesis #5 Although not specifically called out in this hypothesis, Exhibit 5.47 seems to indicate that ventilation manufacturers are recommending energy efficient equipment more often than they previously did. This was considered a weak market effect because of the size of the sample. Additionally, there was a decrease in two market barriers (Split Incentives and Product Availability) that were shown in Exhibit 5.51. This was considered a moderate effect. However, there was no effect seen on test use, which was the specific hypotheses being tested, so this hypothesis has no identifiable market effect.

5.2.6 Hypothesis #6: Designers

Hypothesis six states: The FSTC will reduce market barriers, leading to an increase in the extent to which they: 1) request performance data, 2) recommend energy efficient-equipment, and 3) share information on energy-efficient equipment.

Due to the small sample size, statistical conclusions cannot be drawn when comparing the data from the two study years. However, designers who have heard of the FSTC are more likely to ask manufacturers about energy efficient equipment (Exhibit 5.57) and recommend energy efficient equipment to their customers (Exhibit 5.56). This was considered a weak market effect. Designers always discuss energy efficiency more than their customers request it (Exhibit 5.55).

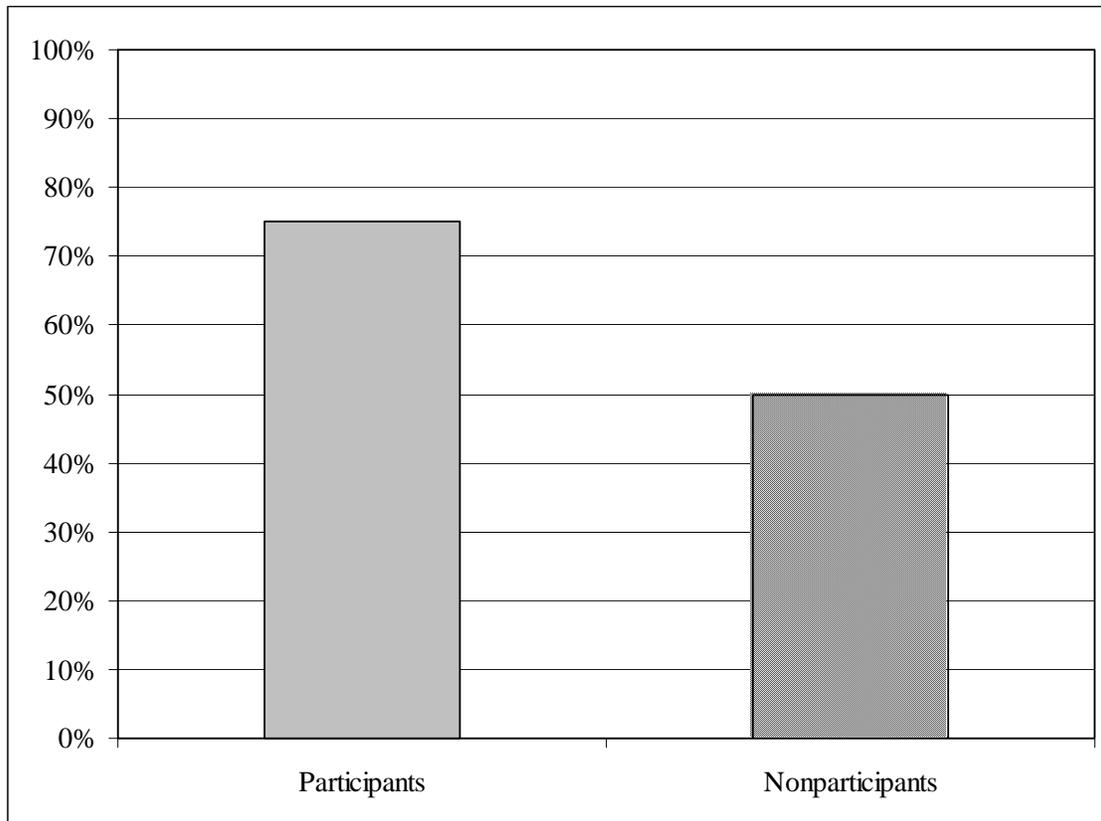
5.2.7 Hypothesis #7: Multi-Unit Specifiers

The hypothesis for multi-unit specifiers is very similar to that for designers. It states: The FSTC will reduce market barriers, leading to an increase in the extent to which multi-unit specifiers: 1) request performance data and 2) recommend energy efficient-equipment.

The participating multi-unit specifiers are more aware of ASTM tests (Exhibit 5.62). Of those who are aware of the ASTM tests, participants request performance data more often than nonparticipating multi-unit specifiers (Exhibit 5.84). This was considered a moderate market effect.

The sample distribution differences (i.e., ‘franchise’ versus ‘not franchise’) seemed to effect how the barrier of Split Incentives was perceived and the percentage of time energy efficient equipment is actually specified. However, having only ten data points for comparison did not enable reliable comparisons. Therefore, this portion of the hypothesis could not be assessed.

Exhibit 5.84
Aware Multi-Unit Specifiers Who Request Performance Data



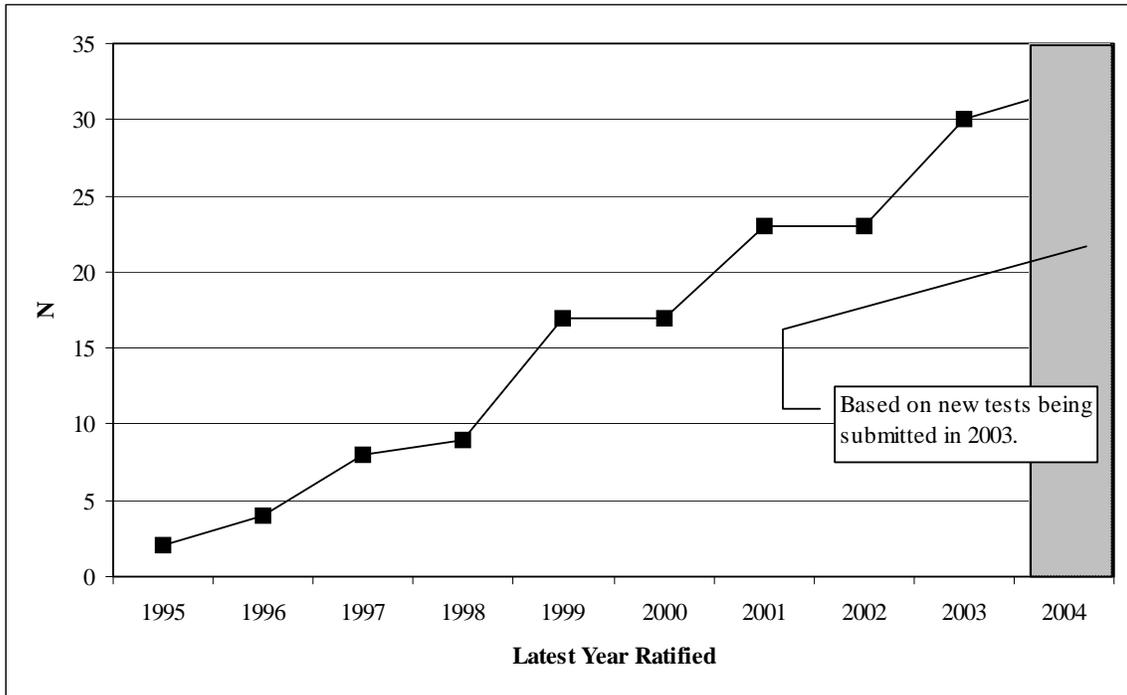
5.2.8 Hypothesis #8: Sustainability

The last hypothesis for this study addressed the potential for sustainability. This hypothesis states: Any observed market effects attributable to the FSTC are sustainable.

Although there are different definitions of what it means to be ‘sustainable’, for a publicly supported energy efficiency program, this generally means that the impacts (or market effects) from a program would continue even if the program itself were to halt. The FSTC has made a strong, sustainable impact on the market through areas not yet fully elucidated (i.e., the test methods, Energy Star support, and ASHRAE involvement).

As indicated in Section 2.1, the FSTC has been involved for many years in the creation and promulgation of energy efficiency testing methods. Exhibit 5.85 shows the steadily increasing number of food service test methods that have been ratified by the ASTM. This exhibit shows the latest year ratified since some of the tests have undergone revisions and updating. The data in Exhibit 5.85 show the number of unique tests for different pieces of equipment. Appendix H has a listing of the 30 test methods currently ratified. All of these test methods have been developed by the FSTC.

Exhibit 5.85
ASTM Test Methods Ratified by Year

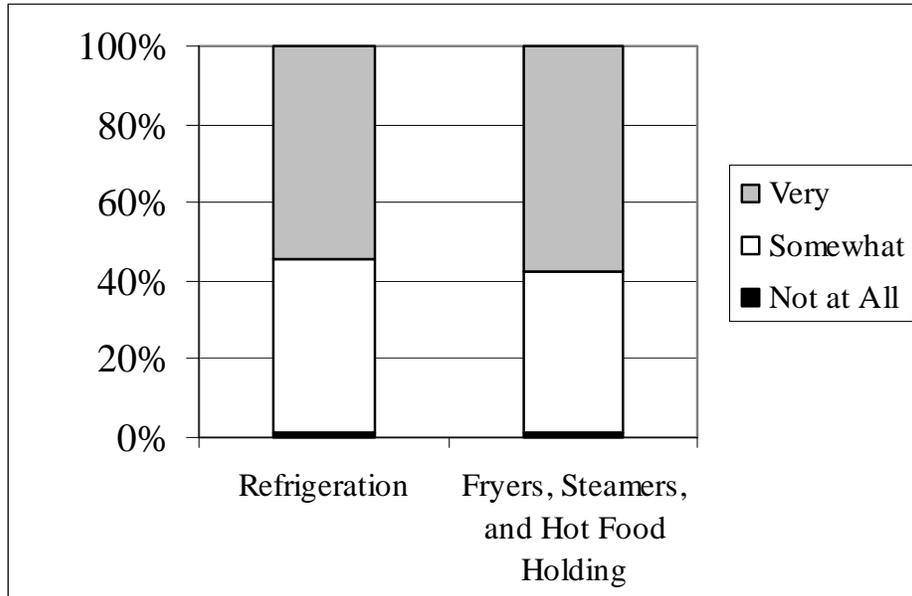


Another area in which the FSTC has been a strong advocate is Energy Star labeling of commercial cooking equipment. At the end of the 1999 study, the FSTC was just beginning to talk to people at the EPA about this issue. In May of 2003, the EPA provided draft specifications for Energy Star ratings (based on the ASTM test methods) for commercial fryers, steamers, and hot food holding cabinets. The FSTC is directly

mentioned in the draft specifications.¹³ The draft specifications were discussed at an industry conference in Chicago on May 20, 2003. At the North American Foodservice Equipment Manufacturing (NAFEM) show in September, 2003, there was Energy Star labeled equipment on the showroom floor.

When asked, the majority of participants indicated that Energy Star labels were very important in their purchase decisions (shown in Exhibit 5.86). Obviously, the function of the ASTM test methods is providing sustainable effects.

Exhibit 5.86
Importance of Energy Star Labels When Purchasing Equipment



The FSTC has been very active in ASHRAE, especially in the area of ventilation. Within the last two years, the FSTC has:

- Attended national ASHRAE meetings
- Participated in technical committees on kitchen ventilation and testing & balancing
- Participated in Standards Project Committee meetings on testing room air diffusion, vending machines, and open refrigerators
- Published articles in ASHRAE Journal and Journal supplement.
- Participated in updating a chapter in the ASHRAE Handbook of HVAC Applications
- Reviewed and commented upon ASHRAE method for testing of vending machines during the public review period.

¹³ 'Based on preliminary data provided by the Food Service Technology Center (FSTC), it is estimated that...' Page 5 of the Eligibility Requirements for each of the pieces of equipment.

Working on a Public Interest Efficiency Research (PIER) grant, the FSTC researched and created the design guide 'Improving Commercial Kitchen Ventilation System Performance'. This guide provides information that is presented to 'help achieve optimum performance and energy efficiency in commercial kitchen ventilation systems'. Available on the FSTC website, it is purported to have been downloaded hundreds of times, widely disseminating this valuable information.

These three areas point to changes in the market and influenced by the FSTC that are considered sustainable.

The majority of this report, however, covers hypotheses of market effects specific to market actors. There have been moderate effects seen in increasing awareness, information and knowledge due to the dissemination efforts of the FSTC. The nonparticipants appear to have a decreased market barrier for Performance Uncertainty, a barrier that is specifically addressed by the FSTC test methods. These effects are considered sustainable with the continuation of the FSTC program. There is the likelihood that more nonparticipant effects, attributable to the FSTC program, may be seen as time progresses. However, this also assumes program continuation. In the absence of program continuation, it is unclear how the energy efficiency test methods would be maintained and updated.

Section 6

Conclusions and Recommendations

Pulling together the information from a broad spectrum of market actors enabled the evaluation team to draw conclusions about the effects of the FSTC on the food service market.

6.1 Conclusions

This section summarizes the conclusions of the evaluation. It sequentially addresses: (1) current market barriers perceived by market actors, (2) the market transformation effects attributable to current FSTC efforts and since the last study, and (3) the continuing need for the program.

6.1.1 Market Barriers

Market barriers are reviewed by market actor with indications of changes in the perceived barriers between the two studies. A review of the market barrier data illustrates the following:

- **Participants.** In 2003 the participants viewed Asymmetric Information as the largest barrier they face (mean score increased from 5.9 in 1999 to 6.1 in 2003 although the increase was not statistically significant). This increase caused the difference between participants and nonparticipants to no longer be significant in 2003 as it had been in 1999. The participants continue to see Performance Uncertainty as less of a market barrier than nonparticipants; however, the difference between mean scores has decreased since 1999 (difference in mean values was 1.8 in 1999 and 0.8 in 2003). In 2003 the participants indicated that Organizational Practices was significantly more of a market barrier than it had been in 1999. As a result of this increase there was no longer a significant difference between the 2003 participants and 2003 nonparticipants with respect to Organizational Practices. A regression was run on the Organizational Practices market barrier to determine if there were any covariates (such as business size or ownership type) that could be partially responsible for this change between 1999 and 2003. The results of this regression indicated that the size of the restaurant was highly correlated to the level of barrier. Thus the significant decrease in the number of large restaurants in the participant sample in 2003 explains why this barrier has increased so much for 2003 FSTC participants
- **Nonparticipants.** In 2003 the largest barrier for nonparticipants continues to be Performance Uncertainty (mean rank = 6.4), although Asymmetric Information barrier is nearly identical and thus much closer than it was in 1999 (mean ranking = 6.4, for an indiscernible difference in 2003 versus 0.7 in 1999). This

change is entirely attributable to changes in Performance Uncertainty, which dropped significantly in 2003. The similarity of the mean scores for these two market barriers seems logical, since sales staff may exaggerate the performance claims of the equipment. The Information Search Cost barrier has increased slightly since 1999. This, in combination with the large drop in Performance Uncertainty for nonparticipants, makes the relationship between these two barriers more logical than they seemed in 1999. Since information should reduce Performance Uncertainty one would expect that these two market barriers would receive similar scores. In 1999 the mean scores for these two market barriers differed by 1.5, which is a large difference on a scale of one to ten. However, in 2003 this difference has been nearly cut in half (mean score difference = 0.8), which may indicate that in 2003 nonparticipants feel performance information is more available or more credible when provided.

- **Manufacturers.** The manufacturers continue to see Organizational Behavior as a slight barrier (mean rank = 4.0 in 1999 and 3.8 in 2003) with Information Search Costs as less of a barrier (mean rank = 3.1 in 1999 and 2.7 in 2003). Manufacturers continue to feel that energy efficient equipment is as reliable as standard equipment (mean rank = 1.7 in 1999 and 2.1 in 2003). While the manufacturers always felt that operational performance was similar between standard and energy efficient equipment, the data presented above suggest that nonparticipants are beginning to agree. The biggest difference in market barriers seen by the manufacturers was for Split Incentives, where the mean value dropped from 5.8 in 1999 to 4.0 in 2003. A credible explanation (provided by the Advisory Board focus group) was that companies are downsizing and the same person is wearing ‘many-hats’. Another explanation put forth for this drop was an energy crisis in California within the past few years that may have changed what the manufacturers are hearing from their customers. However, it is noted that this did not show up in the responses of the nonparticipants and remains anomalous. Manufacturers now perceive less of a market barrier to finding markets for energy efficient equipment. In 1999, this barrier mean was 4.2 whereas in this study it was 2.9. This can fit into the previous explanation for the drop in Split Incentives, but with the same caveat – the nonparticipants do not indicate an increased intention to purchase efficient equipment.
- **Designers.** Designers showed no changes in their perceptions of market barriers. Both Organizational Behaviors and Information Search Costs are ranked between 4 and 5 on a 1 (no barrier) to 10 (high barrier) scale, indicating a slightly less than middle of the road conception of difficulty. For designers, Product Availability is less of an issue with the mean ranking for this potential barrier of 2.9 in 1999 and 3.8 in 2003. No statistical significance can be attributed to the differences between the two studies due to the small sample sizes.
- **Multi-Unit Specifiers.** Since this market actor was not surveyed in 1999, only market barriers between participants and nonparticipants surveyed in 2003 were covered. While no statistical differences were identified due to the small sample sizes, definite trends are visible. Both participant and nonparticipant groups

believe that keeping costs under control for new equipment is needed, with the nonparticipants seeing this as more of an issue than participants. Both groups think that investing extra money in energy efficiency may or may not reduce their ability to take advantage of other investments, although participants see this as a slightly higher barrier. Both groups felt that today's economy calls for being proactive about energy efficiency. Both groups view the Performance Uncertainty and Product Availability barriers similarly while the nonparticipants view both Split Incentives and Information Search Costs as less of a barrier than participants.

6.1.2 FSTC Market Effects

Since the 1999 study, the market effects found by this study are:

- FSTC continues to produce near-term quantifiable effects for participants (i.e., awareness, knowledge, participant perceptions of market barriers, projected purchase decisions, etc.).
- Since the 1999 study, nonparticipant end user market effects were found for the Performance Uncertainty market barrier. This barrier is specifically addressed by the FSTC, although no direct causality can be attributed to the FSTC. There were no effects seen on nonparticipants in terms of their requiring performance data when assessing equipment or intention to purchase energy efficient equipment.
- The FSTC continues to have a weak market effect on the designer community.
- The FSTC has had a moderate effect on participating multi-unit specifiers.
- Sustainable market effects from the FSTC are seen through the ASTM test methods ratified, Energy Star labeling, and advocacy within ASHRAE.

6.1.3 Continuing Need for the Program

Two paragraphs from the evaluation of the FSTC in 1999 continue to be relevant. These words are simply reiterated here:

‘It is important to recognize that the FSTC was almost prophetic in that from its inception in 1986, it has been structured as a market transformation program. From the first Advisory Board meeting in August 1986, the Advisory Board recommended, and the FSTC implemented, a nationally orchestrated approach to develop test procedures, supply information, influence market actors, and, generally, to change the structure of the market to favor energy efficiency.

Clearly, the food service industry is one of the more complex markets to try to change, because of the number and diversity of the market actors. The FSTC program is a good example of how market transformation

programs should work, and how long it actually takes to change a very diverse market with no initial energy efficiency infrastructure in place.’¹⁴

The 1999 study was the first study to be made of this program. The follow-up study reported herein indicates that market effects are continuing, albeit the rate of increasing effects is slow. The market characterization from the 1999 study indicated that the food service industry was a \$27 billion dollar a year market in California with close to 72,000 locations within the state (these values are undoubtedly larger at this point, but updating of the market characterization was out of the scope of this study). In terms of building type, the food service sector is second only to grocery stores in terms of electric energy use per conditioned square foot and is almost four times larger than the other building types in terms of natural gas energy use per square foot.¹⁵ These factors point to the need for continuation of this program, which focuses on all aspects of energy use within the food service sector, with acknowledgement based on recent history, that market-place changes are relatively slow in coming, but are present.

6.2 Recommendations

The recommendations from this study revolved around Program Design.

- 1. Consider Creating Non-Technical Forms of Data Dissemination.** The data indicate that few nonparticipant end users are aware of ASTM test methods, and therefore cannot take advantage of the energy efficiency benefits identified by the test results when they are available. However, with the advent of Energy Star ratings for at least three pieces of cooking equipment, the knowledge of the tests is secondary to knowing what it means to be an Energy Star piece of equipment. The FSTC should consider creating pamphlets or fact sheets presenting information in a non-technical manner targeted to the end user. This information should stress not only the energy attributes of specific equipment, but some of the non-energy benefits as well. These could include items such as the cooking characteristics seen with use of the equipment. The non-technical information should be easily accessible on the website as well as being created for hardcopy dissemination.
- 2. Develop Methods to Expand Manufacturer Involvement in ASTM Test Methods.** The surveys indicate that manufacturers do not actively incorporate the ASTM test methods in their manufacturing process. This makes it difficult for other market actors to assess energy efficiency across various manufacturers of similar pieces of equipment. There are two possible avenues for addressing this issue that are not seen as mutually exclusive:
 - Continue to actively pursue all Energy Star avenues for other food service equipment. While time consuming to engender change, once in effect, this is a sustainable effect.

¹⁴ Pacific Gas & Electric Company’s 1998 Food Service Technology Center Market Effects Study. Study ID: 420-MS-D. June 30, 1999. Page 6-3.

¹⁵ Pacific Gas and Electric Company. Commercial Building Survey Report. 1999. Table 21.

- Create avenues to encourage manufacturer engagement within the ratification process of the ASTM test methods. This could include providing incentives for manufacturers to attend the ASTM conference.
- 3. Continue the Current Focus of the Program.** The concentration by the FSTC of program resources on energy efficiency within areas of the food service sector is effective and should be maintained. ASTM testing is a cornerstone of this work and should be continued.
- 4. Concentrate Seminars on Design and Manufacturing Community.** The participant database indicated a significant number of seminars addressed to schools and other non-core groups. While these groups have the ability to change market practices in the very long term, they do not focus on the primary group capable of creating short and medium term effects. In order to maximize short and medium term effects, the evaluation team recommends an assessment of the focus of the seminar effort to the design and manufacturing community. This may call for development of new seminar material, seminar structure, and marketing approach.

Appendices

A. Participant and Nonparticipant End User Surveys

B. Participant and Nonparticipant End User Responses

C. Final Designer Instrument and Responses

D. Final Manufacturer Instrument and Responses

E. Final Multi-Unit Specifier Instrument and Responses

F. Final Hard-to-Reach Instrument and Responses

G. Methodological Details

H. Listing of ASTM Test Methods

I. Focus Group Notes

Appendix A
Participant and Nonparticipant End User Surveys

This appendix has the original document showing the participant and nonparticipant end user surveys. It is included for easier reading. The frequencies for each question are in Appendix B. That appendix also has the wording of the question along with the responses.

PARTICIPANT SURVEY

Good (morning/afternoon). My name is _____. I am calling on behalf of the Food Service Technology Center, or FSTC. We are conducting a survey, required by the State of California, about the impacts of the FSTC. According to our records, you have had interactions with the FSTC. Is that correct?.

No 

Our records may be in error. Thank you for your time. (Terminate call)

Yes 

1. Do you influence what food service equipment is purchased for new or existing sites?

Yes No Thank and End

We are trying to determine how the FSTC may have influenced people's decision making about energy efficiency in the food service area. The results of the study are to be reported to the California Public Utilities Commission. We would like to ask you some questions related to how you think about energy efficiency. The survey will take approximately 20 minutes. Your responses will be kept confidential.

May I proceed?

2. What is your title?

Owner/Operator Chef Manager
 President Other: _____

3. What are your primary responsibilities? _____

4. Is your company considered a sit down or fast food restaurant?

Sit Down
 Fast Food
 Other (Specify _____)
 DK

5. About how many other sites does your company have in California? _____

6. About how many full-time foodservice employees are there at this or a typical site?

7. Compared to other sites like yours, would you consider yourself to be small, medium or large in terms of revenue?
- small medium big
8. Thinking about all the foodservice operating costs you have, in what areas do you see your greatest opportunities to reduce these costs? **(Do not read list; prompt if needed) (Multiple answers allowed)**
- labor food electricity and gas
- rent equipment purchases
- Other (specify) _____
9. Now, I'd like to ask you some questions regarding the importance of energy efficiency and conservation to your company. On a scale of 1 to 10, with 1 being extremely unimportant and 10 being extremely important, how important is each of the following: **(Randomized a-e)**attitude
- a. Improving energy efficiency to reduce operating costs. ____
- b. Improving energy efficiency to protect the environment. ____
- c. Your energy concerns compared to other business concerns. ____
- d. Recycling more to reduce costs. ____
- e. Recycling more to protect the environment. ____
10. I am now going to refer to the Food Service Technology Center as just the Center for the rest of the interview. What type of information did you learn about during your interactions with the Center? **(Read list) (Multiple answers allowed)** FSTC Activity
- Cooking equipment efficiency
- Ventilation equipment efficiency
- Refrigeration equipment efficiency
- Lighting equipment efficiency
- Heating and air conditioning equipment efficiency
- Water heating equipment efficiency
- Other _____
11. Prior to your interactions with the Center, had you received any formal education or training on this topic (these topics)? **(Randomized 11-13)** FSTC Activity
- Yes
- No
- DK

12. Prior to your interactions with the Center had you actively sought information, publications, or views of colleagues on this topic (these topics)? Behavior

- Yes
- No
- DK

13. Prior to your interactions with the Center, had you actually used the concepts, skills, and technologies discussed at the Center activity? Behavior

- Yes
- No
- DK

Now, I would like you to think about the period since you interacted with the Center.

14. Have you sought more information on this topic (these topics) or received more services from the Center? Behavior

- Yes
- No
- DK

15. Have you sought more information about this topic (these topics) in trade publications, journals, or from colleagues. Behavior

- Yes
- No
- DK

16. Have you visited or talked with personnel at sites where the concepts and technologies related to this area (these areas) have been implemented? Behavior

- Yes
- No
- DK

17. Have you sought more information on this topic (these topics) from manufacturers or distributors? Behavior

- Yes
- No
- DK

18. Have you *actually used* some of the concepts and technologies you learned about from the Center? Behavior

- Yes (**GO TO 19**)

No

DK

19. Do you plan to use some of the concepts and technologies you learned about from the Center? Behavior

Yes

No

DK

I'm going to take a minute to explain the next set of questions. We are particularly interested in understanding how decisions are made when purchasing essential energy-using equipment such as griddles, hoods, refrigerators, lighting, heating, air conditioning and water heating. I am going to read a list of statements that may or may not apply to your experience when considering the purchase of this type of equipment. Please indicate, on a scale of 1 to 10, whether you agree or disagree. A 1 means you strongly disagree and a 10 means you strongly agree. When I mention "energy efficient equipment", I mean equipment that has the same use but consumes less energy than a similar piece of equipment. **(Randomized 20-28)**

20. Our practice is not to worry about equipment unless it breaks down. Organizational practices long term vs. short term

_____ | DK/NA

21. When we select equipment, the most important consideration is immediate delivery. Organizational practices long term vs. short term

_____ | DK/NA

22. Our company includes the long run operating and maintenance costs of equipment in its initial calculations. Organizational practices long term vs. short term

_____ | DK/NA

23. When we select our equipment, the most important issue is its initial cost. Organizational practices long term vs. short term

_____ | DK/NA

24. The most important operational issue for our company is keeping our foodservice costs under control. Organizational practices corp. strategy

_____ | DK/NA

25. Investing extra money in energy efficient equipment would reduce our ability to take advantage of other investment opportunities. Organizational practices corp. strategy

_____ | DK/NA

26. I don't see any reason to be proactive with regard to energy efficiency in today's economy. Organizational practices corp. strategy

_____ | DK/NA

27. The operational costs savings from installing energy efficient equipment would not flow into my departments budget. Split Incentives

_____ | DK/NA

28. The people who have to make the investments in energy efficient equipment for our company are not the same ones who would see the benefits in lower operating costs. Split Incentives

_____ | DK/NA

Because we feel that your interactions between dealers for different types of equipment may vary, we also want to ask you questions about cooking, refrigeration, and ventilation or hood equipment. Please rate the following statements with a 1 to 10 scale like we just used with a 1 meaning you strongly disagree and a 10 meaning you strongly agree. **(Randomize 28-36 and within each question)**

29. When we select cooking equipment, the most important thing we look for is reliability of operation. Performance Uncertainty

_____ | DK/NA 29a

What number would you give for refrigeration equipment?

_____ | DK/NA 29b

For Hoods?

_____ | DK/NA 29c

30. The return on investment from energy efficient cooking equipment is difficult to estimate. Performance Uncertainty

_____ | DK/NA 30a

What number would you give for refrigeration equipment?

_____ | DK/NA 30b

For Hoods?

_____ | DK/NA 30c

31. Our company is unwilling to take the risks involved in the use of high efficiency cooking equipment. Performance Uncertainty Prompt if necessary

_____ | DK/NA 31a

What number would you give for refrigeration equipment?

_____ | DK/NA 31b

For Hoods?

- _____ | DK/NA 31c
32. Our company has the expertise to evaluate the performance of our cooking equipment. Info & search costs
- _____ | DK/NA 32a
- What number would you give for refrigeration equipment?
- _____ | DK/NA 32b
- For Hoods?
- _____ | DK/NA 32c
33. It's hard to figure out which cooking equipment to buy because of all the technical information you have to find. Info & search costs
- _____ | DK/NA 22a
- What number would you give for refrigeration equipment?
- _____ | DK/NA 22b
- For Hoods?
- _____ | DK/NA 22c
34. It's hard to get a handle on the benefits of energy efficient cooking equipment without a detailed written analysis. Information & search costs
- _____ | DK/NA 34a
- What number would you give for refrigeration equipment?
- _____ | DK/NA 34b
- For Hoods?
- _____ | DK/NA 34c
35. Cooking equipment sales people usually just try to push the products of whatever manufacturer they're closest to. Asymmetric Information
- _____ | DK/NA 35a
- What number would you give for refrigeration equipment?
- _____ | DK/NA 35b
- What would your rating be for Hoods?
- _____ | DK/NA 35c
36. Cooking equipment dealers and representatives use the desire for high-efficiency equipment by customers like us to charge more than it's really worth. Asymmetric Information
- _____ | DK/NA 36a
- What number would you give for refrigeration equipment?

_____ | DK/NA 36b
For Hoods?

_____ | DK/NA 36c

37. I think much of what salesperson for cooking equipment tell us about the performance of high efficiency cooking equipment is exaggerated. Asymmetric Information

_____ | DK/NA 37a

What number would you give for refrigeration equipment?

_____ | DK/NA 37b

For Hoods?

_____ | DK/NA 37c

NEW1. If you were considering purchasing new food service equipment, what factors might keep you from purchasing energy efficient equipment? New market barriers

Anything else?

- accept multiple open ends
- DK

NEW2. How important is energy efficiency in your decision when selecting food service equipment? Would you say it is . . . [READ] Attitude

- Very important
- Somewhat important
- Not at all important
- DK

NEW 2A How important is the Energy Star label when considering the purchase of new refrigeration equipment?

- Very important
- Somewhat important
- Not at all important
- DK

NEW 2B Energy Star is poised to issue new labels for fryers, steamers, and hot food holding equipment. How important will these labels be in your equipment selection?

- Very important
- Somewhat important
- Not at all important
- DK

Now I have a few general questions.

38. Have you ever heard of the American Society for Testing and Materials, often referred to as the ASTM? Linkage 15

- Yes
- No (**GO TO 40**)
- DK (**GO TO 40**)

39. Where did you hear about the ASTM? (Do not read; prompt if needed) (**Accept multiple answers**)Linkage 15

- Manufacturer
- Publication
- Trade Show
- Other End User
- Utility
- Dealer
- FSTC
- Other: _____

40. There are standard test methods, adopted by the ASTM, which provide accurate, reproducible results providing production efficiency and energy efficiency for different pieces of cooking equipment (i.e., griddles, ovens, fryers). How aware are you of those methods? (**Read**)Linkage 15

- Not at all aware (**GO TO 34**)
- Somewhat aware
- Very aware
- DK (**GO TO 34**)

41. How did you hear of these testing methods? (Do not read; prompt if needed) (**Accept multiple answers**)Linkage 15

- Manufacturer
- Publication
- Trade Show
- Other End User
- Utility
- Dealer
- FSTC
- Other: _____

42. Have you ever asked your dealer or manufacturer representative about how specific pieces of equipment scored on *these tests* before purchasing them? Linkages 7, 9, 12, 14

- Yes
- No
- DK

43. In the last few years, how often have you asked your dealer, manufacturer, their sales representative, or designer about cooking equipment which saves energy? Linkages 7, 9, 12, 14

_____ DK

44. How about refrigeration equipment which saves energy? Linkages 7, 9, 12, 14

_____ DK

45. How about ventilation equipment which saves energy? Linkages 7, 9, 12, 14

_____ DK

New3. How often have you asked about lighting equipment which saves energy? Linkages 7, 9, 12, 14

_____ DK

New4. How about heating or air conditioning equipment which saves energy? Linkages 7, 9, 12, 14

_____ DK

New5. How about water heating equipment which saves energy? Linkages 7, 9, 12, 14

_____ DK

46. If you had to replace some of the cooking equipment at your restaurant right now, which of the following best describes the efficiency level of the unit that you would purchase:

(Read)Behavior

- Standard Efficiency
- Above average efficiency
- Very high efficiency
- DK

47. How about if you had to replace some of the refrigeration equipment, **(Read)Behavior**

- Standard Efficiency
- Above average efficiency
- Very high efficiency
- DK

48. How about if you had to replace some of the ventilation equipment, **(Read)Behavior**

- Standard Efficiency
- Above average efficiency
- Very high efficiency
- DK

49. Removed Linkage 18

50. Do you currently receive the magazine, *Foodservice Equipment reports*? Linkage 1

- Yes
- No
- DK

51. I am going to read a list of factors that can influence decisions about designs and technology in food service construction and renovation projects. On a scale of “1” to “10”, where “1” is not at all important and “10” is very important, please tell me how important each of the following was in shaping a decision or making a recommendation for your most recent projects. **(Randomized 50-54)**

attitude

51. Information from professional workshops _____|DK

52. A demonstration or test that your company may have conducted _____|DK

53. Rebates _____|DK

54. Technical information on the equipment you are purchasing _____|DK

55. Within the last few years, how many times has your dealer, manufacturer, their sales representative, or designer recommended cooking equipment which saves energy?
Linkage 14

_____ DK

56. How often have they recommended ventilation equipment which saves energy?
Linkage 14

_____ DK

57. How often have they recommended refrigeration equipment which saves energy?
Linkage 14

_____ DK

NEW6. In the past year, have you purchased any new lighting equipment for your restaurant, other than the routine replacement of bulbs? This would include changes to fixtures or ballasts, and the addition of reflectors or lighting controls. Behavior, Linkage 4

Yes [go to NEW6a]

No [go to NEW7]

DK

NEW6a. What type of fixtures or ballasts were installed as part of the lighting retrofit? [SELECT ALL THAT APPLY, AFTER EACH RESPONSE, PROMPT WITH,] Did you install any other reflectors, lighting controls, or lighting fixtures?" [**SELECT ALL THAT APPLY**] Behavior, Linkage 4

1	T8 fluorescent fixtures (1" diameter bulbs)		NEW6b
2	T10 fluorescent fixtures (1 1/4" diameter bulbs)		NEW6b
3	T12 Fixtures (1.5" diameter bulbs)		NEW6b
4	HID (High Density Discharge) Fixtures, Compact		NEW6b
5	Compact Fluorescent, Screw-in Modular		NEW6b
6	Compact Fluorescent, Hardwire		NEW6b
7	Incandescent		NEW6b
8	Exit Signs, Compact Fluorescent		NEW6b
9	Exit Signs, LED		NEW6b
10	Halogen		NEW6b
11	Install Reflectors		NEW6b
12	Electronic Ballast		NEW6b
13	Magnetic Ballast		NEW6b
14	Lighting Controls, Time Clock		NEW6b

15	Lighting Controls, Occupancy Sensor		NEW6b
16	Lighting Controls, Bypass/Delay Timers		NEW6b
17	Lighting Controls, Photocell		NEW6b
18	Other (PLEASE SPECIFY)		NEW6b
65	Other Fluorescent		NEW6b
66	Fat/Thick Tubes		NEW6b
77	Skinny/Thin Tubes		NEW6b
28	T5 Fixtures (5/8" diameter)		NEW6b

NEW6b. Which of the following best describes the efficiency level of the lighting equipment that you purchased?: **(Read)** Behavior, Linkage 4

- Standard Efficiency [go to NEW8]
- Above average efficiency [go to NEW6c]
- Very high efficiency [go to NEW6c]
- DK [go to NEW9]

NEW6c. Why did you purchase lighting equipment that was above average in efficiency?: Behavior, Linkage 4

- _____
- DK

NEW6d. Did your interactions with the Center influence your decision to purchase lighting equipment that was above average in efficiency? Would you say that you were: **(Read)** Behavior, Linkage 4

- Very influenced
- Somewhat influenced
- Not at all influenced
- DK

NEW7. If you had to replace some of the lighting equipment at your restaurant right now, which of the following best describes the efficiency level that you would purchase: **(Read)** Behavior, Linkage 3

- Standard Efficiency
- Above average efficiency
- Very high efficiency
- DK

NEW8. In the past year, have you purchased any new heating or air conditioning equipment for your restaurant, including air conditioning units, furnaces, programmable thermostats, or controls? Behavior, Linkage 4

- Yes [go to NEW8a]
- No [go to NEW9]
- DK

NEW8a. What types of equipment were installed? Behavior, Linkage 4

[SELECT ALL THAT APPLY]

1	Split system (two components; compressor is separate from the supply air fan)		NEW8b
2	Packaged systems (one component)		NEW8b
3	Package Terminal A/C (e.g., Hotel/Motel units)		NEW8b
4	Remote Condensing Unit		NEW8b
5	Evaporative coolers (swamp coolers)		NEW8b
6	Water Chiller		NEW8b
7	Evaporative Condenser		NEW8b
8	Cooling Tower		NEW8b
9	Adjustable Speed Drives		NEW8b
10	Energy Management System		NEW8b
11	Reflective Window Film		NEW8b
12	HVAC Controls: Bypass Timer		NEW8b
13	HVAC Controls: Time Clock		NEW8b
14	HVAC Controls: Set-Back Programmable Thermostat		NEW8b
15	Thermal Energy Storage (Ice Storage, Chilled Water Storage) System		NEW8b
16	OTHER (specify)		NEW8b
71	Individual A/C or Heat Pump		NEW8b

	Units (e.g., Rooftop units, Unitary Equipment, Central A/C with multiple/single unit) NOTE:(ask if split or package system)		
72	Window/Wall Units		NEW8b
21	Boiler		NEW8b
22	Central Furnace/Heater		NEW8b
23	Room/Wall Heater		NEW8b
24	Portable/Space Heater		NEW8b
25	Strip/Baseboard Heat		NEW8b

NEW8b. Which of the following best describes the efficiency level of the heating or air conditioning equipment that you purchased?: **(Read)** Behavior, Linkage 4

- Standard Efficiency [go to NEW10]
- Above average efficiency [go to NEW8c]
- Very high efficiency [go to NEW8c]
- DK [go to NEW10]

IF NEW8a = 1, 2, 3, 21, 22, 23, 71, or 72

NEW8c. Do you recall the efficiency rating of the new equipment [NOTE: probe if SEER, EER for A/C and AFUE for gas Furnace and indicate]?: Behavior, Linkage 4

- SEER value
- EER value
- AFUE value
- RE/Recovery Efficiency value
- Other Efficiency Rating value
- DK

NEW8d. Why did you purchase heating or air conditioning equipment that was above average in efficiency?: Behavior, Linkage 4

- _____
- DK

NEW8e. Did your interactions with the center influence your decision to purchase heating or air conditioning equipment that was above average in efficiency? Would you say that you were: **(Read)** Behavior, Linkage 4

- Very influenced
- Somewhat influenced
- Not at all influenced
- DK

NEW9. If you had to replace some of the heating or air conditioning equipment at your restaurant right now, which of the following best describes the efficiency level that you would purchase: **(Read)** Behavior, Linkage 3

- Standard Efficiency
- Above average efficiency
- Very high efficiency
- DK

NEW10. In the past year, have you purchased any new water heating equipment or equipment that uses hot water for your restaurant? Behavior, Linkage 4

- Yes [go to NEW10a]
- No [go to NEW11]
- DK

NEW10a. What types of equipment were installed? Behavior, Linkage 4

[SELECT ALL THAT APPLY]

1	Gas Water Heater		NEW10b
2	Electric Water Heater		NEW10b
3	Gas Boiler		NEW10b
4	Electric Boiler		NEW10b
5	New Hot Water Nozzle for Dish Rinsing		New 10b
6	New Dishwasher		New 10b
77	OTHER (specify)		NEW10b

NEW10b. Which of the following best describes the efficiency level of the equipment that you purchased?: **(Read)** Behavior, Linkage 4

- Standard Efficiency [go to Q58]
- Above average efficiency [go to NEW10b]
- Very high efficiency [go to NEW10b]
- DK [go to Q58]

NEW10c. Do you recall the energy factor, or efficiency rating of the new equipment?: Behavior, Linkage 4

- Energy Factor value
- RE/Recovery Efficiency value
- Other Efficiency Rating value
- DK

NEW10d. Why did you purchase this equipment that was above average in efficiency?: Behavior, Linkage 4

- _____
- DK

NEW10e. Did your interactions with the center influence your decision to purchase water heating equipment or equipment that uses hot water that was above average in efficiency? Would you say that you were: **(Read)** Behavior, Linkage 4

- Very influenced
- Somewhat influenced
- Not at all influenced
- DK

NEW11. If you had to replace some of the water heating or hot water using equipment at your restaurant right now, which of the following best describes the efficiency level that you would purchase: **(Read)** Behavior, Linkage 3

- Standard Efficiency
- Above average efficiency
- Very high efficiency
- DK

Finally, I'd like to ask you some questions that will help us understand how information get passed among professionals. For each item, please tell me how many times within the last few years, you have done the action described. **(Randomized 58-63)**

58. Passed on material obtained at the Center to others. Linkages 8,10,11

_____ DK

59. Used technical data from the Center to support a decision. Linkage 4

_____ DK

60. Demonstrated or explained to a colleague the benefits of energy efficiency. Linkages 8,10,11

_____ DK

61. Promoted or implemented changes to internal policies or practices in response to information from colleagues about energy efficiency. Linkages 3,4

_____ DK

62. Suggested or insisted that a partner or contractor incorporate ideas learned at the Center. Linkages 8,10,11

_____ DK

63. Discussed ideas presented at the Center with a manufacturer or manufacturer's representative to encourage product change. Linkages 12

_____ DK

That completes this survey. I thank you for your time.

NONPARTICIPANT SURVEY

Good (morning/afternoon). My name is _____. I am calling on behalf of the Food Service Technology Center, or FSTC. We are conducting a survey, required by the State of California, about how the food service sector looks at energy efficiency. The results of the study are to be reported to the California Public Utilities Commission. The survey will take approximately 20 minutes. Your responses will be kept confidential.

May I proceed?

IF NEEDED: We are trying to determine how the FSTC may have influenced people's decision making about energy efficiency in the food service area. We would like to ask you some questions related to how you think about energy efficiency.

1. Are you the person who either decides or has a say in what equipment is purchased for new and existing sites?
 Yes No (Try and get number of person who does and contact them)
2. What is your title?
 Owner/Partner Chef Manager
 President Other: _____
3. What are your primary responsibilities? _____
4. About how many other sites does your company have in California? _____
5. About how many full-time employees are there at this or a typical site?

6. Compared to other sites like yours, would you consider yourself to be small, medium or large in terms of revenue?
 Small Medium Large
7. Thinking about all the foodservice operating costs you have, in what areas do you see your greatest opportunities to reduce these costs? **(Do not read list; prompt if needed) (Multiple answers allowed)**
 labor food gas and electricity
 rent equipment purchases
 Other (specify) _____

8. Now, I'd like to ask you some questions regarding the importance of energy efficiency and conservation to your company. On a scale of 1 to 10, with 1 being extremely unimportant and 10 being extremely important, how important is each of the following: **(Randomize a-e)** attitude
- a. Improving energy efficiency to reduce operating costs. ____|DK
 - b. Improving energy efficiency to protect the environment. ____|DK
 - c. Your energy concerns compared to other business concerns. ____|DK
 - d. Recycling more to reduce costs. ____|DK
 - e. Recycling more to protect the environment. ____|DK

I'm going to take a minute to explain to you about the next set of question. We are particularly interested in understanding how decisions are made regarding purchasing of required energy-using equipment such as griddles, hoods, refrigerators, lighting, heating, air conditioning and water heating. I am going to read a list of statements that may or may not apply to your experience when considering the purchase of this type of equipment. Please indicate, on a scale of 1 to 10, whether you agree or disagree. A 1 means you strongly disagree and a 10 means you strongly agree. When I mention "energy efficient equipment", I mean equipment that has the same use but uses less energy than another similar piece of equipment.

(Randomize 9-17)

9. Our practice is not to worry about equipment unless it breaks down. Organizational practices long term vs. short term
_____ | DK/NA
10. When we select equipment, the most important consideration is immediate delivery. Organizational practices long term vs. short term
_____ | DK/NA
11. Our company includes the long run operating and maintenance costs of equipment in its initial calculations. Organizational practices long term vs. short term
_____ | DK/NA
12. When we select our equipment, the most important issue is its initial cost. Organizational practices long term vs. short term
_____ | DK/NA
13. The most important operational issue for our company is keeping our foodservice costs under control. Organizational practices corp. strategy
_____ | DK/NA
14. Investing extra money in energy efficient equipment would reduce our ability to take advantage of other investment opportunities. Organizational practices corp. strategy

_____ | DK/NA

15. I don't see any reason to be proactive with regard to energy efficiency in today's economy.
Organizational practices corp. strategy

_____ | DK/NA

16. The operational costs savings from installing energy efficient equipment would not flow into my departments budget. Split Incentives

_____ | DK/NA

17. The people who have to make the investments in energy efficient equipment for our company are not the same ones who would see the benefits in lower operating costs.
Split Incentives

_____ | DK/NA

Because we feel that your interactions between dealers for different types of equipment may vary, we also want to ask you questions about cooking, refrigeration, and ventilation or hood equipment. Please rate the following statements with a 1 to 10 scale like we just used with a 1 meaning you strongly disagree and a 10 meaning you strongly agree.

(Randomize 18 – 26)

18. When we select cooking equipment, the most important thing we look for is reliability of operation. Performance Uncertainty

_____ | DK/NA 18a

What number would you give for refrigeration equipment?

_____ | DK/NA 18b

For hoods?

_____ | DK/NA 18c

19. The return on investment from energy efficient cooking equipment is difficult to estimate. Performance Uncertainty

_____ | DK/NA 19a

What number would you give for refrigeration equipment?

_____ | DK/NA 19b

For hoods?

_____ | DK/NA 19c

20. Our company is unwilling to take the risks involved in the use of high efficiency cooking equipment. Performance Uncertainty

_____ | DK/NA 20a

What number would you give for refrigeration equipment?

- _____ | DK/NA 20b
For hoods?
_____ | DK/NA 20c
21. Our company has the expertise to evaluation the performance of our cooking equipment. Info & search costs
_____ | DK/NA 21a
What number would you give for refrigeration equipment?
_____ | DK/NA 21b
For hoods?
_____ | DK/NA 21c
22. It's hard to figure out which cooking equipment to buy because of all the technical information you have to find. Info & search costs
_____ | DK/NA 22a
What number would you give for refrigeration equipment?
_____ | DK/NA 22b
For hoods?
_____ | DK/NA 22c
23. It's hard to get a handle on the benefits of energy efficient cooking equipment without a detailed written analysis. Information & search costs
_____ | DK/NA 23a
What number would you give for refrigeration equipment?
_____ | DK/NA 23b
For hoods?
_____ | DK/NA 23c
24. Cooking equipment sales people usually just try to push the products of whatever manufacturer they're closest to. Asymmetric Information
_____ | DK/NA 24a
What number would you give for refrigeration equipment?
_____ | DK/NA 24b
For hoods?
_____ | DK/NA 24c
25. Cooking equipment dealers and representatives use the desire for high-efficiency equipment by customers like us to charge more than it's really worth. Asymmetric Information

_____ | DK/NA 25a

What number would you give for refrigeration equipment?

_____ | DK/NA 25b

For hoods?

_____ | DK/NA 25c

26. I think much of what salesmen for cooking equipment tell us about the performance of high efficiency cooking equipment is exaggerated. Asymmetric Information

_____ | DK/NA 26a

What number would you give for refrigeration equipment?

_____ | DK/NA 26b

For hoods?

_____ | DK/NA 26c

27. If you were considering purchasing new food service equipment, what factors might keep you from purchasing energy efficient equipment? New market barriers

Anything else?

accept multiple open ends

DK

28. How important is energy efficiency in your decision when selecting food service equipment? Would you say it is . . . **[READ]** Behavior

Very important

Somewhat important

Not at all important

DK

Now I have a few general questions.

29. Have you ever heard of the American Society for Testing and Materials, often referred to as the ASTM? Linkage 17

Yes

No (**GO TO 31**)

DK (**GO TO 31**)

30. Where did you hear about the ASTM? (**Accept multiple answers**)Linkage 17

- Manufacturer
- Other End User
- FSTC
- Publication
- Utility
- Other: _____
- Trade Show
- Dealer

31. There are standard test methods, adopted by the ASTM, which provide accurate, reproducible results providing production efficiency and energy efficiency for different pieces of cooking equipment (i.e., griddles, ovens, fryers). How aware are you of those methods?

(Read) Linkage 17

- Not at all aware (GO TO 34)
- Somewhat aware
- Very aware
- DK (GO TO 34)

32. How did you hear of these testing methods? (Do not read; prompt if needed) (Accept multiple answers) Linkage 17

- Manufacturer
- Other End User
- FSTC
- Publication
- Utility
- Other: _____
- Trade Show
- Dealer

33. Have you ever asked your dealer or manufacturer representative about how specific pieces of equipment scored on *these tests* before purchasing them? Linkage 16

- Yes
- No
- DK

34. In the last few years, how often have you asked your dealer, manufacturer, their sales representative, or designer about cooking equipment which saves energy? Linkage 16

- _____ DK

35. How about refrigeration equipment which saves energy? Linkage 16

- _____ DK

36. How about ventilation equipment which saves energy? Linkage 16

- _____ DK

37. How often have you asked about lighting equipment which saves energy? Linkage 16

- _____ DK

38. How about heating or air conditioning equipment which saves energy? Linkage 16

- _____ DK

39. How about water heating equipment which saves energy? Linkage 16

_____ DK

40. Have you ever heard of the Food Services Technology Center, which we will refer to as just the Center? Linkage 18

- Yes
- No (GO TO 43)
- DK (GO TO 43)

40a. Where did you hear about the Center? (Do not read; prompt if needed) (Accept multiple answers) Linkage 18

- Manufacturer
- Publication
- Trade Show
- Other End User
- Utility
- Dealer
- Other: _____

40b. Have you ever been contacted by the Center regarding energy efficient equipment? Linkage 18

- Yes (If yes, how many times over the last three years?____) 36a
- No (GO TO 0)
- DK (GO TO 0)

40c. What was the reason the Center contacted you? Linkage 18

40d. Have you ever contacted the Center regarding the performance of equipment? Linkage 18

- Yes (If yes, how many times over the last three years?____) 39a
- No (GO TO 41)
- DK (GO TO 41)

40e. What was the reason you contacted the Center? _____ Linkage 18

41. Do you know anyone in the restaurant business who has ever attended an activity sponsored by the Center? Linkage 8

- Yes
- No (GO TO 43)
- DK (GO TO 43)

42. What was their overall impression of what they learned at the Center? Linkage 8

____DK

43. If you had to replace some of the cooking equipment at your restaurant right now, which of the following best describes the efficiency level of the unit that you would purchase: **(Read)** Behavior, Linkage 20

- Standard Efficiency
- Above average efficiency
- Very high efficiency
- DK

44. How about if you had to replace some of the refrigeration equipment? **(Read)** Behavior, Linkage 20

- Standard Efficiency
- Above average efficiency
- Very high efficiency
- DK

45. How about if you had to replace some of the ventilation equipment? **(Read)** Behavior, Linkage 20

- Standard Efficiency
- Above average efficiency
- Very high efficiency
- DK

46. Do you currently receive the magazine, *Foodservice Equipment Reports*? Linkage 18

- Yes
- No
- DK

48. I am going to read a list of four factors that can influence decisions about designs and technology in food service construction and renovation projects. On a scale of "1" to "10", where "1" is not at all important and "10" is very important, please tell me how important each of the following was in shaping a decision or making a recommendation for your most recent projects. attitude

Information from professional workshops _____

49. A demonstration or test that your company may have conducted _____

50. Utility rebates _____
51. Technical information on the equipment you are purchasing _____
52. Within the last few years, how many times has your dealer, manufacturer, their sales representative, or designer recommended cooking equipment which saves energy? Linkage 16
 _____ DK
53. How often have they recommended ventilation equipment which saves energy? Linkage 16
 _____ DK
54. How often have they recommended refrigeration equipment which saves energy? Linkage 16
 _____ DK
55. NEW6. In the past year, have you purchased any new lighting equipment for your restaurant, other than the routine replacement of bulbs? This would include changes to fixtures or ballasts, and the addition of reflectors or lighting controls. Behavior, Linkage 20
 Yes [go to 56]
 No [go to 60]
 DK
56. What type of fixtures or ballasts were installed as part of the lighting retrofit? [SELECT ALL THAT APPLY, AFTER EACH RESPONSE, PROMPT WITH,] Did you install any other reflectors, lighting controls, or lighting fixtures?" [**SELECT ALL THAT APPLY**] Behavior, Linkage 20

1	T8 fluorescent fixtures (1" diameter bulbs)		NEW6b
2	T10 fluorescent fixtures (1 ¼" diameter bulbs)		NEW6b
3	T12 Fixtures (1.5" diameter bulbs)		NEW6b
4	HID (High Density Discharge) Fixtures, Compact		NEW6b
5	Compact Fluorescent, Screw-in Modular		NEW6b
6	Compact Fluorescent, Hardwire		NEW6b
7	Incandescent		NEW6b
8	Exit Signs, Compact Fluorescent		NEW6b
9	Exit Signs, LED		NEW6b
10	Halogen		NEW6b

11	Install Reflectors		NEW6b
12	Electronic Ballast		NEW6b
13	Magnetic Ballast		NEW6b
14	Lighting Controls, Time Clock		NEW6b
15	Lighting Controls, Occupancy Sensor		NEW6b
16	Lighting Controls, Bypass/Delay Timers		NEW6b
17	Lighting Controls, Photocell		NEW6b
18	Other (PLEASE SPECIFY)		NEW6b
65	Other Fluorescent		NEW6b
66	Fat/Thick Tubes		NEW6b
77	Skinny/Thin Tubes		NEW6b
28	T5 Fixtures (5/8" diameter)		NEW6b

57. Which of the following best describes the efficiency level of the lighting equipment that you purchased?: **(Read)** Behavior, Linkage 20

- Standard Efficiency [go to 61]
- Above average efficiency [go to 58]
- Very high efficiency [go to 58]
- DK [go to 67]

58. Why did you purchase lighting equipment that was above average in efficiency?: Behavior, Linkage 20

- _____
- DK

IF Q37=Yes OR Q39=Yes, then

59. Did your interactions with the Center influence your decision to purchase lighting equipment that was above average in efficiency? Would you say that you were: **(Read)** Behavior, Linkage 20

- Very influenced
- Somewhat influenced
- Not at all influenced
- DK

60. If you had to replace some of the lighting equipment at your restaurant right now, which of the following best describes the efficiency level that you would purchase: **(Read)** Behavior, Linkage 20

- Standard Efficiency
- Above average efficiency
- Very high efficiency
- DK

61. In the past year, have you purchased any new heating or air conditioning equipment for your restaurant, including air conditioning units, furnaces, programmable thermostats, or controls? Behavior, Linkage 20

- Yes [go to 62]
- No [go to 67]
- DK

62. What types of equipment were installed? Behavior, Linkage 20

[SELECT ALL THAT APPLY]

1	Split system (two components; compressor is separate from the supply air fan)
2	Packaged systems (one component)
3	Package Terminal A/C (e.g., Hotel/Motel units)
4	Remote Condensing Unit
5	Evaporative coolers (swamp coolers)
6	Water Chiller
7	Evaporative Condenser
8	Cooling Tower
9	Adjustable Speed Drives
10	Energy Management System
12	HVAC Controls: Bypass Timer
13	HVAC Controls: Time Clock
14	HVAC Controls: Set-Back Programmable Thermostat
15	Thermal Energy Storage (Ice Storage, Chilled Water Storage) System
16	OTHER (specify)
71	Individual A/C or Heat Pump Units (e.g., Rooftop units, Unitary

	Equipment, Central A/C with multiple/single unit) NOTE:(ask if split or package system)
72	Window/Wall Units
21	Boiler
22	Central Furnace/Heater
23	Room/Wall Heater
24	Portable/Space Heater
25	Strip/Baseboard Heat

63. Which of the following best describes the efficiency level of the heating or air conditioning equipment that you purchased?: **(Read)** Behavior, Linkage 20

- Standard Efficiency [go to 68]
- Above average efficiency [go to 64]
- Very high efficiency [go to 64]
- DK [go to 68]

IF 62 = 1, 2, 3, 21, 22, 23, 71, or 72

64. Do you recall the efficiency rating of the new equipment [NOTE: probe if SEER, EER for A/C and AFUE for gas Furnace and indicate]?: Behavior, Linkage 20

- SEER value
- EER value
- AFUE value
- RE/Recovery Efficiency value
- Other Efficiency Rating value
- DK

65. Why did you purchase heating or air conditioning equipment that was above average in efficiency?: Behavior, Linkage 20

- _____
- DK

IF Q37=Yes OR Q39=Yes, then

66. Did your interactions with the center influence your decision to purchase heating or air conditioning equipment that was above average in efficiency? Would you say that you were: **(Read)** Behavior, Linkage 20

- Very influenced

- Somewhat influenced
- Not at all influenced
- DK

67. If you had to replace some of the heating or air conditioning equipment at your restaurant right now, which of the following best describes the efficiency level that you would purchase: **(Read)** Behavior, Linkage 20

- Standard Efficiency
- Above average efficiency
- Very high efficiency
- DK

68. In the past year, have you purchased any new water heating equipment or equipment that uses hot water for your restaurant? Behavior, Linkage 20

- Yes [go to 69]
- No [go to 74]
- DK

69. What types of equipment were installed? Behavior, Linkage 20

[SELECT ALL THAT APPLY]

1	Gas Water Heater
2	Electric Water Heater
3	Gas Boiler
4	Electric Boiler
5	New Hot Water Nozzle for Dish Rinsing
6	New Dishwasher
77	OTHER (specify)

70. Which of the following best describes the efficiency level of the equipment that you purchased?: **(Read)** Behavior, Linkage 20

- Standard Efficiency [go to Q75]
- Above average efficiency [go to 71]
- Very high efficiency [go to 71]
- DK [go to Q75]

71. Do you recall the energy factor, or efficiency rating of the new equipment?: Behavior, Linkage 20

- Energy Factor value

- RE/Recovery Efficiency value
- Other Efficiency Rating value
- DK

72. Why did you purchase this equipment that was above average in efficiency?:
Behavior, Linkage 20

- _____
- DK

IF Q37=Yes OR Q39=Yes, then ask:

73. Did your interactions with the center influence your decision to purchase water heating equipment or equipment that uses hot water that was above average in efficiency? Would you say that you were: **(Read)** Behavior, Linkage 20

- Very influenced
- Somewhat influenced
- Not at all influenced
- DK

74. If you had to replace some of the water heating or hot water using equipment at your restaurant right now, which of the following best describes the efficiency level that you would purchase: **(Read)** Behavior, Linkage 20

- Standard Efficiency
- Above average efficiency
- Very high efficiency
- DK

Finally, I'd like to ask you two questions that will help us understand how information gets passed among professionals. For each item, please tell me how many times within the last few years you have done the action described.

75. Demonstrated or explained to a colleague the benefits of energy efficiency. Linkages 8,10,11

- _____ DK

76. Promoted or implemented changes to internal policies or practices in response to information from colleagues about energy efficiency. Linkages 8,10,11

- _____ DK

That completes this survey. I thank you for your time.

Appendix B
Participant and Nonparticipant End User Responses

This appendix has both the wording of each question and the responses. The participant and nonparticipant survey questions are lined up so that the same questions are next to each other. This allows the reader to see the difference in the responses between the two groups. There are some participant or nonparticipant questions with no matching question from the other group.

Participant Survey		
Q2. What is your title?	COUNT	PERCENT
Owner/Operator	14	20%
President	7	10%
Chef	5	7%
Manager	29	42%
Food Services Director	8	12%
Energy Coordinator/Eng	4	6%
Teacher	1	1%
Other - SPECIFY	1	1%
N	69	100%

Nonparticipant Survey		
Q2. What is your title?	COUNT	PERCENT
Owner/Operator	37	49%
President	6	8%
Chef	6	8%
Manager	27	36%
Food Services Director	0	0%
Energy Coordinator/Eng	0	0%
Teacher	0	0%
Other - SPECIFY	0	0%
N	76	100%

Participant Survey		
Q3. What are your primary responsibilities?	COUNT	PERCENT
Other	68	100%
Refused	0	0%
N	68	100%

Nonparticipant Survey		
Q3. What are your primary responsibilities?	COUNT	PERCENT
Other	75	99%
Refused	1	1%
N	76	100%

Participant Survey		
Q4. Which of the following best describes your food service company?	COUNT	PERCENT
Sit down restaurant	40	58%
Fast Food Restaurant	9	13%
Institutional food service	18	26%
Caterer	0	0%
Grocery	2	3%
N	69	100%

Nonparticipant Survey		
V0012. Which of the following best describes your food service company?	COUNT	PERCENT
Sit down restaurant	38	50%
Fast Food Restaurant	38	50%
Institutional food service	0	0%
Caterer	0	0%
Grocery	0	0%
N	76	100%

Participant Survey		
Q5. About how many other sites does your company have in California?	COUNT	PERCENT
0	20	29%
1	12	17%
2	2	3%
3	1	1%
4	4	6%
6	1	1%
7	1	1%
9	3	4%
10	3	4%
13	1	1%
15	2	3%
16	1	1%
19	1	1%
21	1	1%
24	2	3%
30	1	1%
33	1	1%
45	1	1%
70	1	1%
100	1	1%
115	1	1%
180	1	1%
200	1	1%
250	1	1%
300	1	1%
465	1	1%
600	2	3%
99999	1	1%
N	69	100%

Nonparticipant Survey		
Q4. About how many other sites does your company have in California?	COUNT	PERCENT
0	32	42%
1	19	25%
2	5	7%
3	1	1%
4	2	3%
5	2	3%
6	1	1%
9	1	1%
16	1	1%
17	1	1%
24	1	1%
25	1	1%
30	2	3%
40	2	3%
43	1	1%
50	1	1%
100	1	1%
150	2	3%
N	76	100%

Participant Survey		
Q6. About how many full-time foodservice employees are there at this or a typical site?	COUNT	PERCENT
1	1	1%
2	3	4%
3	3	4%
4	1	1%
5	4	6%
6	3	4%
7	2	3%
10	2	3%
12	3	4%
14	3	4%
15	1	1%
17	1	1%
18	1	1%
20	6	9%
25	4	6%
26	1	1%
28	1	1%
30	2	3%
33	1	1%
35	4	6%
36	1	1%
40	3	4%
45	1	1%
50	4	6%
60	1	1%
65	1	1%
80	1	1%
90	1	1%
100	2	3%
125	1	1%
126	1	1%
140	1	1%
150	2	3%

Nonparticipant Survey		
Q5. About how many full-time foodservice employees are there at this or a typical site?	COUNT	PERCENT
1	17	22%
2	11	14%
3	7	9%
4	5	7%
5	4	5%
6	3	4%
7	2	3%
8	4	5%
10	4	5%
11	1	1%
12	1	1%
13	3	4%
20	3	4%
22	2	3%
25	1	1%
30	1	1%
40	3	4%
45	1	1%
50	1	1%
888	1	1%
999	1	1%
N	76	100%

	200	2	3%
N		69	100%

Participant Survey		
Q7. Compared to other sites like yours, would you consider yourself to be small, medium, or large in terms of revenue?	COUNT	PERCENT
Small	17	25%
Medium	33	48%
Large	18	26%
Don't know	1	1%
N	69	100%

Participant Survey		
Q8. Thinking about all the foodservice operating costs you have, in what areas do you see your greatest opportunities to reduce these costs?	COUNT	PERCENT
Labor	24	35%
Food Costs	22	32%
Electricity and Gas	33	48%
Rent	2	3%
Equipment Purchases	9	13%
Insurance	3	4%
None	4	6%
Taxes	0	0%
Repairs	2	3%
Water Usage	1	1%
All	1	1%
Don't Know	4	6%
N	69	

Nonparticipant Survey		
Q6. Compared to other sites like yours, would you consider yourself to be small, medium, or large in terms of revenue?	COUNT	PERCENT
Small	48	63%
Medium	21	28%
Large	6	8%
Don't know	1	1%
N	76	100%

Nonparticipant Survey		
Q7. Thinking about all the foodservice operating costs you have, in what areas do you see your greatest opportunities to reduce these costs?	COUNT	PERCENT
Labor	24	32%
Food Costs	27	36%
Electricity and Gas	32	42%
Rent	7	9%
Equipment Purchases	5	7%
Insurance	7	9%
None	3	4%
Taxes	1	1%
Repairs	0	0%
Water Usage	0	0%
All	0	0%
Don't Know	10	13%
N	76	

Participant Survey		
Q9a. How important is improving energy efficiency to reduce operating costs?	COUNT	PERCENT
1 - Extremely Unimportant	0	0%
2	1	1%
3	0	0%
4	1	1%
5	1	1%
6	3	4%
7	3	4%
8	19	28%
9	9	13%
10 - Extremely Important	32	46%
N	69	100%

Nonparticipant Survey		
Q8a. How important is improving energy efficiency to reduce operating costs?	COUNT	PERCENT
1 - Extremely Unimportant	0	0%
2	1	1%
3	3	4%
4	1	1%
5	6	8%
6	1	1%
7	5	7%
8	16	21%
9	12	16%
10 - Extremely Important	31	41%
N	76	100%

Participant Survey		
Q9b. How important is improving energy efficiency to protect the environment?	COUNT	PERCENT
1 - Extremely Unimportant	0	0%
2	1	1%
3	3	4%
4	0	0%
5	7	10%
6	6	9%
7	9	13%
8	12	17%
9	4	6%
10 - Extremely Important	27	39%
Don't Know	0	0%
N	69	100%

Nonparticipant Survey		
Q8b. How important is improving energy efficiency to protect the environment?	COUNT	PERCENT
1 - Extremely Unimportant	4	5%
2	0	0%
3	2	3%
4	0	0%
5	9	12%
6	5	7%
7	6	8%
8	12	16%
9	5	7%
10 - Extremely Important	32	42%
Don't Know	1	1%
N	76	100%

Participant Survey		
Q9c. How important are your energy concerns compared to other business concerns?	COUNT	PERCENT
1 - Extremely Unimportant	1	1%
2	1	1%
3	1	1%
4	1	1%
5	11	16%
6	11	16%
7	13	19%
8	11	16%
9	8	12%
10 - Extremely Important	11	16%
Don't Know	0	0%
N	69	100%

Nonparticipant Survey		
Q8c. How important are your energy concerns compared to other business concerns?	COUNT	PERCENT
1 - Extremely Unimportant	2	3%
2	1	1%
3	1	1%
4	0	0%
5	10	13%
6	5	7%
7	16	21%
8	16	21%
9	6	8%
10 - Extremely Important	17	22%
Don't Know	2	3%
N	76	100%

Participant Survey		
Q9d. How important is recycling more to reduce costs?	COUNT	PERCENT
1 - Extremely Unimportant	4	6%
2	1	1%
3	3	4%
4	1	1%
5	15	22%
6	4	6%
7	6	9%
8	5	7%
9	9	13%
10 - Extremely Important	19	28%
Don't Know	2	3%
N	69	100%

Nonparticipant Survey		
Q8d. How important is recycling more to reduce costs?	COUNT	PERCENT
1 - Extremely Unimportant	7	9%
2	2	3%
3	2	3%
4	5	7%
5	7	9%
6	6	8%
7	6	8%
8	12	16%
9	4	5%
10 - Extremely Important	22	29%
Don't Know	3	4%
N	76	100%

Participant Survey		
Q9e. How important is recycling more to protect the environment?	COUNT	PERCENT
1 - Extremely Unimportant	2	3%
2	0	0%
3	3	4%
4	1	1%
5	11	16%
6	1	1%
7	10	14%
8	8	12%
9	8	12%
10 - Extremely Important	25	36%
N	69	100%

Nonparticipant Survey		
Q8e. How important is recycling more to protect the environment?	COUNT	PERCENT
1 - Extremely Unimportant	5	7%
2	2	3%
3	2	3%
4	3	4%
5	7	9%
6	5	7%
7	6	8%
8	12	16%
9	6	8%
10 - Extremely Important	28	37%
N	76	100%

Participant Survey		
Q10. I am now going to refer to the Food Service Technology Center as just the Center for the rest of the interview. What type of information did you learn about during your interactions with the Center?	COUNT	PERCENT
Cooking equipment efficiency	57	83%
Ventilation equipment efficiency	47	68%
Refrigeration equipment efficiency	51	74%
Lighting equipment efficiency	48	70%
HVAC equipment efficiency	43	62%
Water heating equipment efficiency	36	52%
Safety	2	3%
Nothing	1	1%
Test Methods	1	1%

Building	1	1%
Don't know	0	0%
N	69	

Participant Survey		
Q11. Prior to your interactions with the Center, had you received any formal education or training on this topic?	COUNT	PERCENT
Yes	37	54%
No	32	46%
N	69	100%

Participant Survey		
Q12. Prior to your interactions with the Center, had you actively sought information, publications, or views of colleagues on this topic?	COUNT	PERCENT
Yes	45	65%
No	24	35%
N	69	100%

Participant Survey		
Q13. Prior to your interactions with the Center, had you actually used the concepts, skills, and technologies discussed at the Center activity?	COUNT	PERCENT
Yes	47	68%
No	22	32%
N	69	100%

Participant Survey		
Q14. Have you sought more information on this topic (these topics) or received more services from the Center?	COUNT	PERCENT
Yes	42	61%
No	26	38%
Don't know	1	1%
N	69	100%

Participant Survey		
Q15. Have you sought more information on this topic (these topics) in trade publications, journals, or from colleagues?	COUNT	PERCENT
Yes	52	75%
No	16	23%
Don't know	1	1%
N	69	100%

Participant Survey		
Q16. Have you visited or talked with personnel at sites where the concepts and technologies related to this area (these areas) have been implemented?	COUNT	PERCENT
Yes	37	54%
No	32	46%
N	69	100%

Participant Survey		
Q17. Have you sought more information on this topic (these topics) from manufacturers or distributors?	COUNT	PERCENT
Yes	50	72%
No	19	28%
N	69	100%

Participant Survey		
Q18. Have you actually used some of the concepts and technologies you learned about from the Center?	COUNT	PERCENT
Yes	59	86%
No	9	13%
Don't know	1	1%
N	69	100%

Participant Survey		
Q19. Do you plan to use some of the concepts and technologies you learned about from the Center?	COUNT	PERCENT
Yes	7	70%
No	2	20%
Don't know	1	10%
N	10	100%

Participant Survey		
Q20. Our practice is not to worry about equipment unless it breaks down.	COUNT	PERCENT
1 - Strongly Disagree	22	32%
2	12	17%
3	5	7%
4	3	4%
5	5	7%
6	0	0%
7	5	7%
8	5	7%
9	5	7%
10 - Strongly Agree	7	10%
N	69	100%

Nonparticipant Survey		
Q9. Our practice is not to worry about equipment unless it breaks down.	COUNT	PERCENT
1 - Strongly Disagree	22	29%
2	8	11%
3	7	9%
4	2	3%
5	12	16%
6	1	1%
7	4	5%
8	8	11%
9	1	1%
10 - Strongly Agree	11	14%
N	76	100%

Participant Survey		
Q21. When we select equipment, the most important consideration is immediate delivery.	COUNT	PERCENT
1 - Strongly Disagree	15	22%
2	10	14%
3	5	7%
4	6	9%
5	5	7%
6	4	6%
7	5	7%
8	11	16%
9	3	4%
10 - Strongly Agree	5	7%
Don't Know	0	0%
N	69	100%

Nonparticipant Survey		
Q10. When we select equipment, the most important consideration is immediate delivery.	COUNT	PERCENT
1 - Strongly Disagree	10	13%
2	5	7%
3	4	5%
4	5	7%
5	12	16%
6	4	5%
7	6	8%
8	6	8%
9	1	1%
10 - Strongly Agree	21	28%
Don't Know	2	3%
N	76	100%

Participant Survey		
Q22. Our company includes the long run operating and maintenance costs of equipment in its initial calculations.	COUNT	PERCENT
1 - Strongly Disagree	5	7%
2	1	1%
3	1	1%
4	2	3%
5	15	22%
6	2	3%
7	5	7%
8	15	22%
9	6	9%
10 - Strongly Agree	14	20%
Don't Know	3	4%
N	69	100%

Nonparticipant Survey		
Q11. Our company includes the long run operating and maintenance costs of equipment in its initial calculations.	COUNT	PERCENT
1 - Strongly Disagree	7	9%
2	3	4%
3	3	4%
4	2	3%
5	13	17%
6	4	5%
7	5	7%
8	9	12%
9	4	5%
10 - Strongly Agree	24	32%
Don't Know	2	3%
N	76	100%

Participant Survey		
Q23. When we select our equipment, the most important issue is its initial cost.	COUNT	PERCENT
1 - Strongly Disagree	12	17%
2	5	7%
3	1	1%
4	5	7%
5	6	9%
6	8	12%
7	10	14%
8	10	14%
9	3	4%
10 - Strongly Agree	9	13%
Don't Know	0	0%
N	69	100%

Nonparticipant Survey		
Q12. When we select our equipment, the most important issue is its initial cost.	COUNT	PERCENT
1 - Strongly Disagree	7	9%
2	6	8%
3	2	3%
4	3	4%
5	10	13%
6	7	9%
7	7	9%
8	10	13%
9	5	7%
10 - Strongly Agree	18	24%
Don't Know	1	1%
N	76	100%

Participant Survey		
Q24. The most important operational issue for our company is keeping our foodservice costs under control.		
	COUNT	PERCENT
1 - Strongly Disagree	4	6%
2	2	3%
3	1	1%
4	3	4%
5	4	6%
6	2	3%
7	11	16%
8	12	17%
9	6	9%
10 - Strongly Agree	24	35%
N	69	100%

Participant Survey		
Q25. Investing extra money in energy efficient equipment would reduce our ability to take advantage of other investment opportunities.		
	COUNT	PERCENT
1 - Strongly Disagree	15	22%
2	5	7%
3	7	10%
4	2	3%
5	11	16%
6	5	7%
7	4	6%
8	7	10%
9	2	3%
10 - Strongly Agree	11	16%
Refused	0	0%
Don't Know	0	0%
N	69	100%

Nonparticipant Survey		
Q13. The most important operational issue for our company is keeping our foodservice costs under control.		
	COUNT	PERCENT
1 - Strongly Disagree	2	3%
2	1	1%
3	0	0%
4	0	0%
5	8	11%
6	3	4%
7	10	13%
8	10	13%
9	2	3%
10 - Strongly Agree	40	53%
N	76	100%

Nonparticipant Survey		
Q14. Investing extra money in energy efficient equipment would reduce our ability to take advantage of other investment opportunities.		
	COUNT	PERCENT
1 - Strongly Disagree	14	18%
2	2	3%
3	6	8%
4	1	1%
5	13	17%
6	6	8%
7	7	9%
8	7	9%
9	2	3%
10 - Strongly Agree	13	17%
Refused	1	1%
Don't Know	4	5%
N	76	100%

Participant Survey		
Q26. I don't see any reason to be proactive with regard to energy efficiency in today's economy.	COUNT	PERCENT
1 - Strongly Disagree	38	55%
2	7	10%
3	6	9%
4	2	3%
5	0	0%
6	1	1%
7	2	3%
8	2	3%
9	4	6%
10 - Strongly Agree	7	10%
N	69	100%

Nonparticipant Survey		
Q15. I don't see any reason to be proactive with regard to energy efficiency in today's economy.	COUNT	PERCENT
1 - Strongly Disagree	42	55%
2	4	5%
3	4	5%
4	3	4%
5	8	11%
6	2	3%
7	1	1%
8	5	7%
9	2	3%
10 - Strongly Agree	5	7%
N	76	100%

Participant Survey		
Q27. The operational costs savings from installing energy efficient equipment would not flow into my department's budget.	COUNT	PERCENT
1 - Strongly Disagree	20	29%
2	8	12%
3	5	7%
4	3	4%
5	8	12%
6	1	1%
7	6	9%
8	4	6%
9	1	1%
10 - Strongly Agree	13	19%
Don't Know	0	0%
N	69	100%

Nonparticipant Survey		
Q16. The operational costs savings from installing energy efficient equipment would not flow into my department's budget.	COUNT	PERCENT
1 - Strongly Disagree	21	28%
2	6	8%
3	2	3%
4	1	1%
5	16	21%
6	3	4%
7	3	4%
8	8	11%
9	1	1%
10 - Strongly Agree	8	11%
Don't Know	7	9%
N	76	100%

Participant Survey		
Q28. The people who have to make the investments in energy efficiency equipment for our company are not the same ones who would see the benefits in lower operating costs.		
	COUNT	PERCENT
1 - Strongly Disagree	20	29%
2	9	13%
3	5	7%
4	0	0%
5	14	20%
6	2	3%
7	5	7%
8	9	13%
9	0	0%
10 - Strongly Agree	3	4%
Refused	1	1%
Don't Know	1	1%
N	69	100%

Nonparticipant Survey		
Q17. The people who have to make the investments in energy efficiency equipment for our company are not the same ones who would see the benefits in lower operating costs.		
	COUNT	PERCENT
1 - Strongly Disagree	29	38%
2	5	7%
3	2	3%
4	1	1%
5	10	13%
6	3	4%
7	4	5%
8	6	8%
9	3	4%
10 - Strongly Agree	8	11%
Refused	0	0%
Don't Know	5	7%
N	76	100%

Participant Survey		
Q29a. When we select cooking equipment, the most important thing we look for is reliability of operation		
	COUNT	PERCENT
1 - Strongly Disagree	4	6%
2	0	0%
3	2	3%
4	1	1%
5	5	7%
6	3	4%
7	8	12%
8	11	16%
9	9	13%
10 - Strongly Agree	24	35%
Refused	0	0%

Nonparticipant Survey		
Q18a. When we select cooking equipment, the most important thing we look for is reliability of operation		
	COUNT	PERCENT
1 - Strongly Disagree	2	3%
2	0	0%
3	1	1%
4	0	0%
5	1	1%
6	3	4%
7	5	7%
8	5	7%
9	14	18%
10 - Strongly Agree	39	51%
Refused	2	3%

Don't Know	1	1%
N	68	100%

Don't Know	4	5%
N	76	1%

Participant Survey		
Q29b. When we select refrigeration equipment, the most important thing we look for is reliability of operation	COUNT	PERCENT
1 - Strongly Disagree	2	3%
2	0	0%
3	2	3%
4	2	3%
5	6	9%
6	2	3%
7	7	10%
8	10	15%
9	6	9%
10 - Strongly Agree	31	46%
Don't Know	0	0%
N	68	100%

Nonparticipant Survey		
Q18b. When we select refrigeration equipment, the most important thing we look for is reliability of operation	COUNT	PERCENT
1 - Strongly Disagree	1	1%
2		0%
3	1	1%
4		0%
5	3	4%
6	5	7%
7	4	5%
8	8	11%
9	10	13%
10 - Strongly Agree	43	57%
Don't Know	1	1%
N	75	99%

Participant Survey		
Q29c. When we select hoods, the most important thing we look for is reliability of operation	COUNT	PERCENT
1 - Strongly Disagree	2	3%
2	0	0%
3	3	4%
4	1	1%
5	7	10%
6	5	7%
7	7	10%
8	9	13%
9	6	9%
10 - Strongly Agree	26	38%

Nonparticipant Survey		
Q18c. When we select hoods, the most important thing we look for is reliability of operation	COUNT	PERCENT
1 - Strongly Disagree	1	1%
2	0	0%
3	1	1%
4	0	0%
5	3	4%
6	5	7%
7	5	7%
8	7	9%
9	7	9%
10 - Strongly Agree	38	50%

Refused	0	0%
Don't Know	2	3%
N	68	100%

Refused	2	3%
Don't Know	7	9%
N	76	100%

Participant Survey		
Q30a. The return on investment from energy efficient cooking equipment is difficult to estimate	COUNT	PERCENT
1 - Strongly Disagree	10	15%
2	4	6%
3	5	7%
4	4	6%
5	7	10%
6	3	4%
7	12	18%
8	7	10%
9	3	4%
10 - Strongly Agree	12	18%
Refused	0	0%
Don't Know	1	1%
N	68	100%

Nonparticipant Survey		
Q19a. The return on investment from energy efficient cooking equipment is difficult to estimate	COUNT	PERCENT
1 - Strongly Disagree	7	9%
2	2	3%
3	3	4%
4	1	1%
5	17	22%
6	3	4%
7	8	11%
8	8	11%
9	2	3%
10 - Strongly Agree	19	25%
Refused	1	1%
Don't Know	5	7%
N	76	100%

Participant Survey		
Q30b. The return on investment from energy efficient refrigeration equipment is difficult to estimate	COUNT	PERCENT
1 - Strongly Disagree	8	12%
2	5	7%
3	4	6%
4	4	6%
5	6	9%
6	5	7%
7	14	21%

Nonparticipant Survey		
Q19b. The return on investment from energy efficient refrigeration equipment is difficult to estimate	COUNT	PERCENT
1 - Strongly Disagree	8	11%
2	4	5%
3	2	3%
4	1	1%
5	17	22%
6	3	4%
7	5	7%

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8	6	9%
9	2	3%
10 - Strongly Agree	12	18%
Refused	0	0%
Don't Know	2	3%
N	68	100%

8	11	14%
9	3	4%
10 - Strongly Agree	19	25%
Refused	1	1%
Don't Know	2	3%
N	76	100%

Participant Survey		
Q30c. The return on investment from energy efficient hoods is difficult to estimate	COUNT	PERCENT
1 - Strongly Disagree	5	7%
2	4	6%
3	7	10%
4	3	4%
5	7	10%
6	4	6%
7	12	18%
8	6	9%
9	5	7%
10 - Strongly Agree	11	16%
Refused	0	0%
Don't Know	4	6%
N	68	100%

Nonparticipant Survey		
Q19c. The return on investment from energy efficient hoods is difficult to estimate	COUNT	PERCENT
1 - Strongly Disagree	8	11%
2	3	4%
3	3	4%
4	1	1%
5	16	21%
6	4	5%
7	4	5%
8	7	9%
9	2	3%
10 - Strongly Agree	17	22%
Refused	1	1%
Don't Know	10	13%
N	76	100%

Participant Survey		
Q31a. Our company is unwilling to take the risks involved in the use of high efficiency cooking equipment	COUNT	PERCENT
1 - Strongly Disagree	28	41%
2	14	21%
3	4	6%
4	2	3%
5	7	10%
6	1	1%

Nonparticipant Survey		
Q20a. Our company is unwilling to take the risks involved in the use of high efficiency cooking equipment	COUNT	PERCENT
1 - Strongly Disagree	26	34%
2	6	8%
3	5	7%
4	2	3%
5	12	16%
6	3	4%

7	4	6%
8	4	6%
9	0	0%
10 - Strongly Agree	1	1%
Refused	0	0%
Don't Know	3	4%
N	68	100%

7	3	4%
8	3	4%
9	2	3%
10 - Strongly Agree	10	13%
Refused	1	1%
Don't Know	3	4%
N	76	100%

Participant Survey		
Q31b. Our company is unwilling to take the risks involved in the use of high efficiency refrigeration equipment	COUNT	PERCENT
1 - Strongly Disagree	29	43%
2	12	18%
3	4	6%
4	2	3%
5	7	10%
6	0	0%
7	4	6%
8	5	7%
9	2	3%
10 - Strongly Agree	1	1%
Refused	0	0%
Don't Know	2	3%
N	68	100%

Nonparticipant Survey		
Q20b. Our company is unwilling to take the risks involved in the use of high efficiency refrigeration equipment	COUNT	PERCENT
1 - Strongly Disagree	26	34%
2	8	11%
3	3	4%
4	1	1%
5	11	14%
6	4	5%
7	5	7%
8	4	5%
9	4	5%
10 - Strongly Agree	8	11%
Refused	1	1%
Don't Know	1	1%
N	76	100%

Participant Survey		
Q31c. Our company is unwilling to take the risks involved in the use of high efficiency hoods	COUNT	PERCENT
1 - Strongly Disagree	27	40%
2	12	18%
3	2	3%

Nonparticipant Survey		
Q20c. Our company is unwilling to take the risks involved in the use of high efficiency hoods	COUNT	PERCENT
1 - Strongly Disagree	27	36%
2	6	8%
3	3	4%

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4	3	4%
5	11	16%
6	0	0%
7	2	3%
8	5	7%
9	0	0%
10 - Strongly Agree	1	1%
Refused	0	0%
Don't Know	5	7%
N	68	100%

4	1	1%
5	10	13%
6	4	5%
7	3	4%
8	3	4%
9	3	4%
10 - Strongly Agree	8	11%
Refused	2	3%
Don't Know	6	8%
N	76	100%

Participant Survey		
Q32a. Our company has the expertise to evaluate the performance of our cooking equipment	COUNT	PERCENT
1 - Strongly Disagree	7	10%
2	5	7%
3	6	9%
4	1	1%
5	14	21%
6	5	7%
7	4	6%
8	7	10%
9	3	4%
10 - Strongly Agree	13	19%
Refused	0	0%
Don't Know	3	4%
N	68	100%

Nonparticipant Survey		
Q21a. Our company has the expertise to evaluate the performance of our cooking equipment	COUNT	PERCENT
1 - Strongly Disagree	9	12%
2	2	3%
3	2	3%
4	6	8%
5	9	12%
6	3	4%
7	9	12%
8	6	8%
9	4	5%
10 - Strongly Agree	24	32%
Refused	1	1%
Don't Know	1	1%
N	76	100%

Participant Survey		
Q32b. Our company has the expertise to evaluate the performance of our refrigeration equipment	COUNT	PERCENT
1 - Strongly Disagree	6	9%
2	5	7%
3	5	7%
4	3	4%
5	10	15%
6	6	9%
7	3	4%
8	10	15%
9	6	9%
10 - Strongly Agree	12	18%
Refused	0	0%
Don't Know	2	3%
N	68	100%

Nonparticipant Survey		
Q21b. Our company has the expertise to evaluate the performance of our refrigeration equipment	COUNT	PERCENT
1 - Strongly Disagree	6	8%
2	3	4%
3	2	3%
4	5	7%
5	9	12%
6	3	4%
7	8	11%
8	9	12%
9	4	5%
10 - Strongly Agree	24	32%
Refused	1	1%
Don't Know	2	3%
N	76	100%

Participant Survey		
Q32c. Our company has the expertise to evaluate the performance of our hoods	COUNT	PERCENT
1 - Strongly Disagree	8	12%
2	4	6%
3	6	9%
4	3	4%
5	10	15%
6	5	7%
7	4	6%
8	10	15%
9	2	3%
10 - Strongly Agree	12	18%
Refused	0	0%
Don't Know	4	6%
N	68	100%

Nonparticipant Survey		
Q21c. Our company has the expertise to evaluate the performance of our hoods	COUNT	PERCENT
1 - Strongly Disagree	8	11%
2	3	4%
3	2	3%
4	3	4%
5	10	13%
6	2	3%
7	6	8%
8	8	11%
9	4	5%
10 - Strongly Agree	23	30%
Refused	1	1%
Don't Know	6	8%
N	76	100%

Participant Survey		
Q33a. It's hard to figure out which cooking equipment to buy because of all the technical information you have to find	COUNT	PERCENT
1 - Strongly Disagree	11	16%
2	6	9%
3	6	9%
4	4	6%
5	12	18%
6	9	13%
7	4	6%
8	4	6%
9	2	3%
10 - Strongly Agree	9	13%
Refused	0	0%
Don't Know	1	1%
N	68	100%

Participant Survey		
Q33b. It's hard to figure out which refrigeration equipment to buy because of all the technical information you have to find	COUNT	PERCENT
1 - Strongly Disagree	9	13%
2	6	9%
3	6	9%
4	3	4%
5	11	16%
6	9	13%
7	6	9%
8	6	9%
9	3	4%
10 - Strongly Agree	9	13%
Refused	0	0%
Don't Know	0	0%
N	68	100%

Nonparticipant Survey		
Q22a. It's hard to figure out which cooking equipment to buy because of all the technical information you have to find	COUNT	PERCENT
1 - Strongly Disagree	14	18%
2	8	11%
3	4	5%
4	1	1%
5	6	8%
6	2	3%
7	3	4%
8	11	14%
9	5	7%
10 - Strongly Agree	17	22%
Refused	1	1%
Don't Know	4	5%
N	76	100%

Nonparticipant Survey		
Q22b. It's hard to figure out which refrigeration equipment to buy because of all the technical information you have to find	COUNT	PERCENT
1 - Strongly Disagree	16	21%
2	4	5%
3	6	8%
4	1	1%
5	7	9%
6	4	5%
7	2	3%
8	11	14%
9	8	11%
10 - Strongly Agree	14	18%
Refused	1	1%
Don't Know	2	3%
N	76	100%

Participant Survey		
Q33c. It's hard to figure out which hoods to buy because of all the technical information you have to find		
	COUNT	PERCENT
1 - Strongly Disagree	9	13%
2	6	9%
3	6	9%
4	4	6%
5	11	16%
6	5	7%
7	3	4%
8	9	13%
9	2	3%
10 - Strongly Agree	9	13%
Refused	0	0%
Don't Know	4	6%
N	68	100%

Nonparticipant Survey		
Q22c. It's hard to figure out which hoods to buy because of all the technical information you have to find		
	COUNT	PERCENT
1 - Strongly Disagree	15	20%
2	4	5%
3	3	4%
4	1	1%
5	9	12%
6	3	4%
7	3	4%
8	13	17%
9	3	4%
10 - Strongly Agree	13	17%
Refused	2	3%
Don't Know	7	9%
N	76	100%

Participant Survey		
Q34a. It's hard to get a handle on the benefits of energy efficient cooking equipment without a detailed written analysis		
	COUNT	PERCENT
1 - Strongly Disagree	5	7%
2	2	3%
3	3	4%
4	8	12%
5	8	12%
6	5	7%
7	4	6%
8	15	22%
9	2	3%
10 - Strongly Agree	15	22%

Nonparticipant Survey		
Q23a. It's hard to get a handle on the benefits of energy efficient cooking equipment without a detailed written analysis		
	COUNT	PERCENT
1 - Strongly Disagree	9	12%
2	0	0%
3	1	1%
4	3	4%
5	10	13%
6	5	7%
7	8	11%
8	10	13%
9	2	3%
10 - Strongly Agree	22	29%

Refused	0	0%
Don't Know	1	1%
N	68	100%

Refused	1	1%
Don't Know	5	7%
N	76	100%

Participant Survey		
Q34b. It's hard to get a handle on the benefits of energy efficient refrigeration equipment without a detailed written analysis	COUNT	PERCENT
1 - Strongly Disagree	4	6%
2	1	1%
3	3	4%
4	8	12%
5	9	13%
6	8	12%
7	5	7%
8	13	19%
9	2	3%
10 - Strongly Agree	14	21%
Refused	0	0%
Don't Know	1	1%
N	68	100%

Nonparticipant Survey		
Q23b. It's hard to get a handle on the benefits of energy efficient refrigeration equipment without a detailed written analysis	COUNT	PERCENT
1 - Strongly Disagree	8	11%
2	1	1%
3	2	3%
4	3	4%
5	13	17%
6	4	5%
7	4	5%
8	13	17%
9	4	5%
10 - Strongly Agree	22	29%
Refused	1	1%
Don't Know	1	1%
N	76	100%

Participant Survey		
Q34c. It's hard to get a handle on the benefits of energy efficient hoods without a detailed written analysis	COUNT	PERCENT
1 - Strongly Disagree	3	4%
2	1	1%
3	3	4%
4	7	10%
5	11	16%
6	4	6%
7	4	6%

Nonparticipant Survey		
Q23c. It's hard to get a handle on the benefits of energy efficient hoods without a detailed written analysis	COUNT	PERCENT
1 - Strongly Disagree	8	11%
2	1	1%
3	3	4%
4	2	3%
5	13	17%
6	4	5%
7	5	7%

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8	12	18%
9	3	4%
10 - Strongly Agree	17	25%
Refused	0	0%
Don't Know	3	4%
N	68	100%

8	8	11%
9	3	4%
10 - Strongly Agree	20	26%
Refused	2	3%
Don't Know	7	9%
N	76	100%

Participant Survey		
Q35a. Cooking equipment sales people usually just try to push the products of whatever manufacturer they're closest to	COUNT	PERCENT
1 - Strongly Disagree	1	1%
2	5	7%
3	0	0%
4	0	0%
5	14	21%
6	4	6%
7	8	12%
8	6	9%
9	7	10%
10 - Strongly Agree	21	31%
Refused	0	0%
Don't Know	2	3%
N	68	100%

Nonparticipant Survey		
Q24a. Cooking equipment sales people usually just try to push the products of whatever manufacturer they're closest to	COUNT	PERCENT
1 - Strongly Disagree	6	8%
2	4	5%
3	2	3%
4	0	0%
5	9	12%
6	4	5%
7	5	7%
8	13	17%
9	4	5%
10 - Strongly Agree	18	24%
Refused	1	1%
Don't Know	10	13%
N	76	100%

Participant Survey		
Q35b. Refrigeration equipment sales people usually just try to push the products of whatever manufacturer they're closest to	COUNT	PERCENT
1 - Strongly Disagree	1	1%
2	3	4%
3	1	1%
4	1	1%

Nonparticipant Survey		
Q24b. Refrigeration equipment sales people usually just try to push the products of whatever manufacturer they're closest to	COUNT	PERCENT
1 - Strongly Disagree	6	8%
2	7	9%
3	3	4%
4	0	0%

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5	12	18%
6	4	6%
7	12	18%
8	8	12%
9	6	9%
10 - Strongly Agree	18	26%
Refused	0	0%
Don't Know	2	3%
N	68	100%

5	7	9%
6	4	5%
7	6	8%
8	14	18%
9	4	5%
10 - Strongly Agree	18	24%
Refused	1	1%
Don't Know	6	8%
N	76	100%

Participant Survey		
Q35c. Hood sales people usually just try to push the products of whatever manufacturer they're closest to	COUNT	PERCENT
1 - Strongly Disagree	1	1%
2	4	6%
3	1	1%
4	1	1%
5	13	19%
6	4	6%
7	9	13%
8	7	10%
9	7	10%
10 - Strongly Agree	16	24%
Refused	0	0%
Don't Know	5	7%
N	68	100%

Nonparticipant Survey		
Q24c. Hood sales people usually just try to push the products of whatever manufacturer they're closest to	COUNT	PERCENT
1 - Strongly Disagree	8	11%
2	3	4%
3	2	3%
4	3	4%
5	8	11%
6	1	1%
7	6	8%
8	12	16%
9	3	4%
10 - Strongly Agree	17	22%
Refused	2	3%
Don't Know	11	14%
N	76	100%

Participant Survey		
Q36a. Cooking equipment dealers and representatives use the desire for high-efficiency equipment by customers like us to charge more than it's really worth	COUNT	PERCENT
1 - Strongly Disagree	8	12%
2	2	3%
3	5	7%
4	6	9%
5	13	19%
6	2	3%
7	7	10%
8	7	10%
9	2	3%
10 - Strongly Agree	9	13%
Refused	0	0%
Don't Know	7	10%
N	68	100%

Nonparticipant Survey		
Q25a. Cooking equipment dealers and representatives use the desire for high-efficiency equipment by customers like us to charge more than it's really worth	COUNT	PERCENT
1 - Strongly Disagree	6	8%
2	2	3%
3	1	1%
4	2	3%
5	10	13%
6	10	13%
7	8	11%
8	9	12%
9	1	1%
10 - Strongly Agree	18	24%
Refused	1	1%
Don't Know	8	11%
N	76	100%

Participant Survey		
Q36b. Refrigeration equipment dealers and representatives use the desire for high-efficiency equipment by customers like us to charge more than it's really worth	COUNT	PERCENT
1 - Strongly Disagree	6	9%
2	3	4%
3	5	7%
4	5	7%
5	16	24%
6	1	1%
7	7	10%
8	8	12%

Nonparticipant Survey		
Q25b. Refrigeration equipment dealers and representatives use the desire for high-efficiency equipment by customers like us to charge more than it's really worth	COUNT	PERCENT
1 - Strongly Disagree	5	7%
2	2	3%
3	1	1%
4	1	1%
5	14	18%
6	8	11%
7	8	11%
8	12	16%

9	3	4%
10 - Strongly Agree	9	13%
Refused	1	1%
Don't Know	4	6%
N	68	100%

9	0	0%
10 - Strongly Agree	19	25%
Refused	1	1%
Don't Know	5	7%
N	76	100%

Participant Survey		
Q36c. Hood dealers and representatives use the desire for high-efficiency equipment by customers like us to charge more than it's really worth	COUNT	PERCENT
1 - Strongly Disagree	6	9%
2	2	3%
3	6	9%
4	5	7%
5	16	24%
6	2	3%
7	5	7%
8	6	9%
9	3	4%
10 - Strongly Agree	9	13%
Refused	1	1%
Don't Know	7	10%
N	68	100%

Nonparticipant Survey		
Q25c. Hood dealers and representatives use the desire for high-efficiency equipment by customers like us to charge more than it's really worth	COUNT	PERCENT
1 - Strongly Disagree	5	7%
2	1	1%
3	2	3%
4	1	1%
5	9	12%
6	9	12%
7	8	11%
8	7	9%
9	1	1%
10 - Strongly Agree	18	24%
Refused	2	3%
Don't Know	13	17%
N	76	100%

Participant Survey		
Q37a. I think much of what salesperson for cooking equipment tell us about the performance of high efficiency cooking equipment is exaggerated	COUNT	PERCENT
1 - Strongly Disagree	8	12%
2	5	7%
3	2	3%

Nonparticipant Survey		
Q26a. I think much of what salesperson for cooking equipment tell us about the performance of high efficiency cooking equipment is exaggerated	COUNT	PERCENT
1 - Strongly Disagree	7	9%
2	2	3%
3	3	4%

4	5	7%
5	14	21%
6	8	12%
7	6	9%
8	6	9%
9	1	1%
10 - Strongly Agree	9	13%
Refused	0	0%
Don't Know	4	6%
N	68	100%

4	2	3%
5	15	20%
6	9	12%
7	3	4%
8	6	8%
9	6	8%
10 - Strongly Agree	15	20%
Refused	1	1%
Don't Know	7	9%
N	76	100%

Participant Survey		
Q37b. I think much of what salesperson for hoods tell us about the performance of high efficiency hoods is exaggerated	COUNT	PERCENT
1 - Strongly Disagree	8	12%
2	7	10%
3	3	4%
4	3	4%
5	14	21%
6	10	15%
7	8	12%
8	3	4%
9	1	1%
10 - Strongly Agree	9	13%
Refused	0	0%
Don't Know	2	3%
N	68	100%

Nonparticipant Survey		
Q26b. I think much of what salesperson for hoods tell us about the performance of high efficiency hoods is exaggerated	COUNT	PERCENT
1 - Strongly Disagree	8	11%
2	2	3%
3	3	4%
4	3	4%
5	17	22%
6	9	12%
7	3	4%
8	9	12%
9	4	5%
10 - Strongly Agree	13	17%
Refused	1	1%
Don't Know	4	5%
N	76	100%

Participant Survey		
Q37c. I think much of what salesperson for refrigeration equipment tell us about the performance of high efficiency refrigeration equipment is exaggerated	COUNT	PERCENT
1 - Strongly Disagree	7	10%
2	5	7%
3	3	4%
4	6	9%
5	14	21%
6	8	12%
7	5	7%
8	4	6%
9	2	3%
10 - Strongly Agree	8	12%
Refused	0	0%
Don't Know	6	9%
N	68	100%

Nonparticipant Survey		
Q26c. I think much of what salesperson for refrigeration equipment tell us about the performance of high efficiency refrigeration equipment is exaggerated	COUNT	PERCENT
1 - Strongly Disagree	7	9%
2	1	1%
3	3	4%
4	3	4%
5	19	25%
6	8	11%
7	3	4%
8	3	4%
9	5	7%
10 - Strongly Agree	12	16%
Refused	2	3%
Don't Know	10	13%
N	76	100%

Participant Survey		
NEW1. If you were considering purchasing new food service equipment, what factors might keep you from purchasing energy efficient equipment?	COUNT	PERCENT
Cost	45	66%
Availability	6	9%
Company Rules	2	3%
Performance Uncertainty	8	12%
Durability/Reliability	19	28%
Knowledge	2	3%
Energy Conservation	1	1%
Need	2	3%
Size/Fit	8	12%
Brand	0	0%

Nonparticipant Survey		
27. If you were considering purchasing new food service equipment, what factors might keep you from purchasing energy efficient equipment?	COUNT	PERCENT
Cost	60	79%
Availability	3	4%
Company Rules	2	3%
Performance Uncertainty	4	5%
Durability/Reliability	14	18%
Knowledge	4	5%
Energy Conservation	3	4%
Need	3	4%
Size/Fit	2	3%
Brand	2	3%

Nothing	8	12%
Asymmetric Information	0	0%
Don't Know	3	4%
N	68	149%

Nothing	9	12%
Asymmetric Information	2	3%
Don't Know	1	1%
N	76	142%

Participant Survey		
NEW2. How important is energy efficiency in your decision when selecting food service equipment? Would you say it is . . .	COUNT	PERCENT
Very Important	43	63%
Somewhat Important	25	37%
Not at all Important	0	0%
Don't Know	0	0%
N	68	100%

Nonparticipant Survey		
Q28. How important is energy efficiency in your decision when selecting food service equipment? Would you say it is . . .	COUNT	PERCENT
Very Important	46	61%
Somewhat Important	24	32%
Not at all Important	4	5%
Don't Know	2	3%
N	76	100%

Participant Survey		
NEW 2A How important is the Energy Star label when considering the purchase of new refrigeration equipment?	COUNT	PERCENT
Very Important	36	53%
Somewhat Important	29	43%
Not at all Important	1	1%
Don't Know	2	3%
N	68	100%

Participant Survey		
NEW 2B Energy Star is poised to issue new labels for fryers, steamers, and hot food holding equipment. How important will these labels be in your equipment selection?	COUNT	PERCENT
Very Important	39	57%
Somewhat Important	28	41%
Not at all Important	1	1%
Don't Know	0	0%
N	68	100%

Participant Survey		
Q38. Have you ever heard of the American Society for Testing and Materials, often referred to as the ASTM?	COUNT	PERCENT
Yes	32	47%
No	36	53%
N	68	100%

Participant Survey		
Q39. Where did you hear about the ASTM?	COUNT	PERCENT
Manufacturer	5	16%
Publications	15	47%
Trade Show	1	3%
Other End User	6	19%
Utility	0	0%
Dealer	0	0%
FSTC	7	22%
Health Department	0	0%
None	1	3%
Other Training	5	16%
Don't Know	1	3%
N	32	

Nonparticipant Survey		
Q29. Have you ever heard of the American Society for Testing and Materials, often referred to as the ASTM?	COUNT	PERCENT
Yes	17	22%
No	59	78%
N	76	100%

Nonparticipant Survey		
Q30. Where did you hear about the ASTM?	COUNT	PERCENT
Manufacturer	1	6%
Publications	10	59%
Trade Show	0	0%
Other End User	2	12%
Utility	1	6%
Dealer	1	6%
FSTC	0	0%
Health Department	0	0%
None	1	6%
Other Training	0	0%
Don't Know	2	12%
N	17	

Participant Survey		
Q40. There are standard test methods, adopted by the ASTM, which provide accurate, reproducible results providing production efficiency and energy efficiency for different pieces of cooking equipment (i.e., griddles, ovens, fryers). How aware are you of	COUNT	PERCENT
Not at all aware	26	38%
Somewhat aware	38	56%
Very aware	4	6%
Don't know	0	0%
N	68	100%

End Use Survey		
Q31. There are standard test methods, adopted by the ASTM, which provide accurate, reproducible results providing production efficiency and energy efficiency for different pieces of cooking equipment (i.e., griddles, ovens, fryers). How aware are you of	COUNT	PERCENT
Not at all aware	46	61%
Somewhat aware	19	25%
Very aware	7	9%
Don't know	4	5%
N	76	100%

Participant Survey		
Q41. How did you hear of these testing methods?	COUNT	PERCENT
Manufacturer	4	10%
Publications	21	50%
Trade Show	1	2%
Other End User	1	2%
Utility	1	2%
Dealer	1	2%
FSTC	13	31%
Health Department	0	0%
None	0	0%
Other Training	3	7%
Don't Know	3	7%
N	42	

Nonparticipant Survey		
Q32. How did you hear of these testing methods?	COUNT	PERCENT
Manufacturer	1	4%
Publications	12	46%
Trade Show	0	0%
Other End User	4	15%
Utility	2	8%
Dealer	1	4%
FSTC	0	0%
Health Department	2	8%
None	1	4%
Other Training	0	0%
Don't Know	4	15%
N	26	

Participant Survey		
Q42. Have you ever asked your dealer or manufacturer representative about how specific pieces of equipment scored on these tests before purchasing them?	COUNT	PERCENT
Yes	15	36%
No	27	64%
Don't know	0	0%
N	42	100%

Nonparticipant Survey		
Q33. Have you ever asked your dealer or manufacturer representative about how specific pieces of equipment scored on these tests before purchasing them?	COUNT	PERCENT
Yes	3	12%
No	22	85%
Don't know	1	4%
N	26	100%

Participant Survey		
Q43. In the last few years, how often have you asked your dealer, manufacturer, their sales representative, or designer about cooking equipment which saves energy?	COUNT	PERCENT
0	18	28%
1	22	34%
2	10	15%
3	15	23%
N	65	100%

Nonparticipant Survey		
Q34. In the last few years, how often have you asked your dealer, manufacturer, their sales representative, or designer about cooking equipment which saves energy?	COUNT	PERCENT
0	54	71%
1	13	17%
2	5	7%
3	4	5%
N	76	100%

Participant Survey		
Q44. How about refrigeration equipment which saves energy?	COUNT	PERCENT
0	22	33%
1	18	27%
2	11	17%
3	15	23%
N	66	100%

Nonparticipant Survey		
Q35. How about refrigeration equipment which saves energy?	COUNT	PERCENT
0	45	59%
1	17	22%
2	6	8%
3	8	11%
N	76	100%

Participant Survey		
Q45. How about ventilation equipment which saves energy?	COUNT	PERCENT
0	31	46%
1	16	24%
2	9	13%
3	11	16%
N	67	100%

Nonparticipant Survey		
Q36. How about ventilation equipment which saves energy?	COUNT	PERCENT
0	57	75%
1	10	13%
2	4	5%
3	5	7%
N	76	100%

Participant Survey		
New3. How often have you asked about lighting equipment which saves energy?	COUNT	PERCENT
Never	20	30%
Rarely	17	26%
Sometimes	11	17%
All the time	18	27%
N	66	100%

Nonparticipant Survey		
Q37. How often have you asked about lighting equipment which saves energy?	COUNT	PERCENT
Never	37	49%
Rarely	21	28%
Sometimes	8	11%
All the time	10	13%
N	76	100%

Participant Survey		
New4. How about heating or air conditioning equipment which saves energy?	COUNT	PERCENT
Never	23	35%
Rarely	16	25%
Sometimes	10	15%
All the time	16	25%
N	65	100%

Nonparticipant Survey		
Q38. How about heating or air conditioning equipment which saves energy?	COUNT	PERCENT
Never	43	57%
Rarely	16	21%
Sometimes	4	5%
All the time	13	17%
N	76	100%

Participant Survey		
New5. How about water heating equipment which saves energy?	COUNT	PERCENT
Never	34	52%
Rarely	15	23%
Sometimes	8	12%
All the time	9	14%
N	66	100%

Nonparticipant Survey		
Q39. How about water heating equipment which saves energy?	COUNT	PERCENT
Never	50	66%
Rarely	18	24%
Sometimes	4	5%
All the time	4	5%
N	76	100%

Nonparticipant Survey		
40. Have you ever heard of the Food Services Technology Center, which we will refer to as just the Center?	COUNT	PERCENT
Yes	10	13%
No	66	87%
Don't Know	0	0%
N	76	100%

Nonparticipant Survey		
40A. Where did you hear about the Center?	COUNT	PERCENT
Manufacturer	1	10%
Publications	1	10%
Trade Show	0	0%
Other End User	3	30%
Utility	2	20%
Dealer	0	0%
FSTC	3	30%
N	10	100%

Nonparticipant Survey		
40B. Have you ever been contacted by the Center regarding energy efficient equipment?	COUNT	PERCENT
Yes	3	30%
No	7	70%
Don't Know	0	0%
N	10	100%

Nonparticipant Survey		
40C. What was the reason the Center contacted you?	COUNT	PERCENT
General	1	33%
New Equipment	1	33%
None	0	0%
Don't Know	1	33%
N	3	100%

Nonparticipant Survey		
40D. Have you ever contacted the Center regarding the performance of equipment?	COUNT	PERCENT
Yes	1	10%
No	9	90%
Don't Know	0	0%
N	10	100%

Nonparticipant Survey		
40E. What was the reason you contacted the Center?	COUNT	PERCENT
Efficiency Question	1	100%
N	1	

Nonparticipant Survey		
41. Do you know anyone in the restaurant business who has ever attended an activity sponsored by the Center?	COUNT	PERCENT
Yes	1	10%
No	9	90%
Don't Know	0	0%
N	10	100%

Nonparticipant Survey		
42. What was their overall impression of what they learned at the Center?	COUNT	PERCENT
Informative	1	100%
N	1	

Participant Survey		
Q46. If you had to replace some of the cooking equipment at your restaurant right now, which of the following best describes the efficiency level of the unit that you would purchase:	COUNT	PERCENT
Standard efficiency	9	13%
Above average efficiency	25	37%
Very high efficiency	33	49%
Don't know	1	1%
N	68	100%

Nonparticipant Survey		
Q43. If you had to replace some of the cooking equipment at your restaurant right now, which of the following best describes the efficiency level of the unit that you would purchase:	COUNT	PERCENT
Standard efficiency	22	29%
Above average efficiency	27	36%
Very high efficiency	23	30%
Don't know	4	5%
N	76	100%

Participant Survey		
Q47. How about if you had to replace some of the refrigeration equipment?	COUNT	PERCENT
Standard efficiency	5	7%
Above average efficiency	26	38%
Very high efficiency	36	53%
Don't know	1	1%
N	68	100%

Nonparticipant Survey		
Q44. How about if you had to replace some of the refrigeration equipment?	COUNT	PERCENT
Standard efficiency	18	24%
Above average efficiency	24	32%
Very high efficiency	30	39%
Don't know	4	5%
N	76	100%

Participant Survey		
Q48. How about if you had to replace some of the ventilation equipment?	COUNT	PERCENT
Standard efficiency	14	21%
Above average efficiency	25	37%
Very high efficiency	28	41%
Refused	0	0%
Don't know	1	1%
N	68	100%

Nonparticipant Survey		
Q45. How about if you had to replace some of the ventilation equipment?	COUNT	PERCENT
Standard efficiency	21	28%
Above average efficiency	14	18%
Very high efficiency	31	41%
Refused	1	1%
Don't know	9	12%
N	76	100%

Participant Survey		
Q50. Do you currently receive the magazine, <i>Foodservice Equipment reports</i> ?	COUNT	PERCENT
Yes	23	34%
No	44	65%
Don't know	1	1%
N	68	100%

Nonparticipant Survey		
Q46. Do you currently receive the magazine, <i>Foodservice Equipment reports</i> ?	COUNT	PERCENT
Yes	11	14%
No	60	79%
Don't know	5	7%
N	76	100%

Participant Survey		
Q51. How important is information from professional workshops in shaping a decision or making a recommendation for your most recent projects?	COUNT	PERCENT
1 - Not at all Important	2	3%
2	2	3%
3	4	6%
4	0	0%
5	8	12%
6	3	4%
7	9	13%
8	16	24%
9	9	13%
10 - Very Important	15	22%
Don't Know	0	0%
N	68	100%

Nonparticipant Survey		
Q48. How important is information from professional workshops in shaping a decision or making a recommendation for your most recent projects?	COUNT	PERCENT
1 - Not at all Important	11	14%
2	1	1%
3	2	3%
4	1	1%
5	13	17%
6	4	5%
7	6	8%
8	7	9%
9	4	5%
10 - Very Important	24	32%
Don't Know	3	4%
N	76	100%

Participant Survey		
Q52. How important is a demonstration or test that your company may have conducted in shaping a decision or making a recommendation for your most recent projects?	COUNT	PERCENT
1 - Not at all Important	4	6%
2	1	1%
3	1	1%
4	2	3%
5	11	16%
6	8	12%
7	5	7%
8	15	22%
9	6	9%

Nonparticipant Survey		
Q49. How important is a demonstration or test that your company may have conducted in shaping a decision or making a recommendation for your most recent projects?	COUNT	PERCENT
1 - Not at all Important	13	17%
2	2	3%
3	2	3%
4	3	4%
5	12	16%
6	3	4%
7	8	11%
8	8	11%
9	2	3%

10 - Very Important	15	22%
Don't Know	0	0%
N	68	100%

10 - Very Important	20	26%
Don't Know	3	4%
N	76	100%

Participant Survey		
Q53. How important are rebates in shaping a decision or making a recommendation for your most recent projects?	COUNT	PERCENT
1 - Not at all Important	4	6%
2	4	6%
3	1	1%
4	5	7%
5	15	22%
6	2	3%
7	8	12%
8	8	12%
9	1	1%
10 - Very Important	20	29%
Don't Know	0	0%
N	68	100%

Nonparticipant Survey		
Q50. How important are rebates in shaping a decision or making a recommendation for your most recent projects?	COUNT	PERCENT
1 - Not at all Important	5	7%
2	2	3%
3	3	4%
4	2	3%
5	6	8%
6	4	5%
7	7	9%
8	11	14%
9	3	4%
10 - Very Important	31	41%
Don't Know	2	3%
N	76	100%

Participant Survey		
Q54. How important is technical information on the equipment you are purchasing in shaping a decision or making a recommendation for your most recent projects?	COUNT	PERCENT
1 - Not at all Important	4	6%
2	0	0%
3	2	3%
4	1	1%
5	8	12%
6	3	4%
7	8	12%
8	15	22%

Nonparticipant Survey		
Q51. How important is technical information on the equipment you are purchasing in shaping a decision or making a recommendation for your most recent projects?	COUNT	PERCENT
1 - Not at all Important	5	7%
2	1	1%
3	2	3%
4	4	5%
5	9	12%
6	3	4%
7	7	9%
8	11	14%

9	7	10%
10 - Very Important	20	29%
Don't Know	0	0%
N	68	100%

9	6	8%
10 - Very Important	27	36%
Don't Know	1	1%
N	76	100%

Participant Survey			
Q55. Within the last few years, how many times has your dealer, manufacturer, their sales representative, or designer recommended cooking equipment which saves energy?		COUNT	PERCENT
	0	17	26%
	1	24	36%
	2	12	18%
	3	13	20%
N	66	100%	

Nonparticipant Survey			
Q52. Within the last few years, how many times has your dealer, manufacturer, their sales representative, or designer recommended cooking equipment which saves energy?		COUNT	PERCENT
	0	50	70%
	1	15	21%
	2	5	7%
	3	1	1%
N	71	100%	

Participant Survey			
Q56. Within the last few years, how many times has your dealer, manufacturer, their sales representative, or designer recommended ventilation equipment which saves energy?		COUNT	PERCENT
	0	36	55%
	1	11	17%
	2	8	12%
	3	10	15%
N	65	100%	

Nonparticipant Survey			
Q53. Within the last few years, how many times has your dealer, manufacturer, their sales representative, or designer recommended ventilation equipment which saves energy?		COUNT	PERCENT
	0	54	78%
	1	10	14%
	2	3	4%
	3	2	3%
N	69	100%	

Participant Survey		
Q57. Within the last few years, how many times has your dealer, manufacturer, their sales representative, or designer recommended refrigeration equipment which saves energy?	COUNT	PERCENT
0	28	42%
1	17	25%
2	8	12%
3	14	21%
N	67	100%

Nonparticipant Survey		
Q54. Within the last few years, how many times has your dealer, manufacturer, their sales representative, or designer recommended refrigeration equipment which saves energy?	COUNT	PERCENT
0	44	61%
1	20	28%
2	5	7%
3	3	4%
N	72	100%

Participant Survey		
NEW6. In the past year, have you purchased any new lighting equipment for your restaurant, other than the routine replacement of bulbs? This would include changes to fixtures or ballasts, and the addition of reflectors or lighting controls.	COUNT	PERCENT
Yes	23	34%
No	44	65%
Don't know	1	1%
N	68	100%

Nonparticipant Survey		
Q55. NEW6. In the past year, have you purchased any new lighting equipment for your restaurant, other than the routine replacement of bulbs? This would include changes to fixtures or ballasts, and the addition of reflectors or lighting controls.	COUNT	PERCENT
Yes	16	21%
No	59	78%
Don't know	1	1%
N	76	100%

Participant Survey		
NEW6a. What type of fixtures or ballasts were installed as part of the lighting retrofit?	COUNT	PERCENT
T8 fluorescent fixtures	6	26%
T10 fluorescent fixtures	0	0%
T12 Fixtures	1	4%

Nonparticipant Survey		
56. What type of fixtures or ballasts were installed as part of the lighting retrofit?	COUNT	PERCENT
T8 fluorescent fixtures	5	31%
T10 fluorescent fixtures	2	13%
T12 Fixtures	0	0%

HID Fixtures	3	13%
Compact Fluorescent Screw-in Modular	10	43%
Compact Fluorescent, Hardwire	2	9%
Incandescent	1	4%
Exit Signs, Compact Fluorescent	0	0%
Exit Signs, LED	0	0%
Halogen	0	0%
Install Reflectors	0	0%
Electronic Ballast	4	17%
Magnetic Ballast	0	0%
Lighting Controls, Time Clock	1	4%
Lighting Controls, Occupancy Sensor	2	9%
Lighting Controls, Bypass/Delay Timers	2	9%
Lighting Controls, Photocell	0	0%
Other Fluorescent	1	4%
Fat/Thick Tubes	0	0%
Skinny/Thin Tubes	1	4%
T5 Fixtures (5/8" diameter)	0	0%
Don't know	2	9%
N	23	157%

HID Fixtures	0	0%
Compact Fluorescent Screw-in Modular	3	19%
Compact Fluorescent, Hardwire	1	6%
Incandescent	2	13%
Exit Signs, Compact Fluorescent	0	0%
Exit Signs, LED	0	0%
Halogen	0	0%
Install Reflectors	0	0%
Electronic Ballast	0	0%
Magnetic Ballast	1	6%
Lighting Controls, Time Clock	0	0%
Lighting Controls, Occupancy Sensor	1	6%
Lighting Controls, Bypass/Delay Timers	0	0%
Lighting Controls, Photocell	0	0%
Other Fluorescent	1	6%
Fat/Thick Tubes	0	0%
Skinny/Thin Tubes	1	6%
T5 Fixtures (5/8" diameter)	0	0%
Don't know	1	6%
N	16	113%

Participant Survey		
NEW6b. Which of the following best describes the efficiency level of the lighting equipment that you purchased?:	COUNT	PERCENT
Standard Efficiency	4	17%
Above Average Efficiency	8	35%
Very High Efficiency	11	48%
Don't know	0	0%
N	23	100%

Nonparticipant Survey		
57. Which of the following best describes the efficiency level of the lighting equipment that you purchased?:	COUNT	PERCENT
Standard Efficiency	3	19%
Above Average Efficiency	7	44%
Very High Efficiency	6	38%
Don't know	0	0%
N	16	100%

Participant Survey		
NEW6c. Why did you purchase lighting equipment that was above average in efficiency?:	COUNT	PERCENT
Cost	16	84%
Energy Savings	4	21%
Looks	1	5%
Function	1	5%
Lifespan	3	16%
Recommendation	0	0%
Don't know	0	0%
N	19	132%

Nonparticipant Survey		
58. Why did you purchase lighting equipment that was above average in efficiency?:	COUNT	PERCENT
Cost	6	46%
Energy Savings	4	31%
Looks	2	15%
Function	1	8%
Lifespan	3	23%
Recommendation	0	0%
Don't know	0	0%
N	13	123%

Participant Survey		
NEW6d. Did your interactions with the Center influence your decision to purchase lighting equipment that was above average in efficiency? Would you say that you were:	COUNT	PERCENT
Very Influenced	5	26%
Somewhat Influenced	9	47%
Not at all Influenced	5	26%
Don't know	0	0%
N	19	100%

Nonparticipant Survey		
59. Did your interactions with the Center influence your decision to purchase lighting equipment that was above average in efficiency? Would you say that you were:	COUNT	PERCENT
Very Influenced	0	0%
Somewhat Influenced	0	0%
Not at all Influenced	1	100%
Don't know	0	0%
N	1	100%

Participant Survey		
NEW7. If you had to replace some of the lighting equipment at your restaurant right now, which of the following best describes the efficiency level that you would purchase:	COUNT	PERCENT
Standard Efficiency	3	7%
Above Average Efficiency	13	29%

Nonparticipant Survey		
60. If you had to replace some of the lighting equipment at your restaurant right now, which of the following best describes the efficiency level that you would purchase:	COUNT	PERCENT
Standard Efficiency	18	30%
Above Average Efficiency	15	25%

Very High Efficiency	28	62%
Don't know	1	2%
N	45	100%

Very High Efficiency	24	40%
Don't know	3	5%
N	60	100%

Participant Survey		
NEW8. In the past year, have you purchased any new heating or air conditioning equipment for your restaurant, including air conditioning units, furnaces, programmable thermostats, or controls?		
	COUNT	PERCENT
Yes	22	32%
No	45	66%
Don't know	1	1%
N	68	100%

Nonparticipant Survey		
61. In the past year, have you purchased any new heating or air conditioning equipment for your restaurant, including air conditioning units, furnaces, programmable thermostats, or controls?		
	COUNT	PERCENT
Yes	14	18%
No	61	80%
Don't know	1	1%
N	76	100%

Participant Survey		
NEW8a. What types of equipment were installed?		
	COUNT	PERCENT
Split Systems	6	27%
Packaged Systems	7	32%
Package Terminal A/C	1	5%
Remote Condensing Unit	0	0%
Evaporative Coolers	0	0%
Water Chiller	3	14%
Evaporative Condenser	0	0%
Cooling Tower	1	5%
Adjustable Speed Drives	0	0%
Energy Management System	1	5%
Reflective Window Film	1	5%
HVAC Controls: Bypass Timer	0	0%
HVAC Controls: Time Clock	7	32%
Thermal Energy Storage	2	9%
Individual A/C or Heat Pump Units	0	0%

Nonparticipant Survey		
62. What types of equipment were installed?		
	COUNT	PERCENT
Split Systems	1	7%
Packaged Systems	1	7%
Package Terminal A/C	1	7%
Remote Condensing Unit	1	7%
Evaporative Coolers	3	21%
Water Chiller	0	0%
Evaporative Condenser	0	0%
Cooling Tower	0	0%
Adjustable Speed Drives	0	0%
Energy Management System	0	0%
Reflective Window Film	0	0%
HVAC Controls: Bypass Timer	0	0%
HVAC Controls: Time Clock	1	7%
Thermal Energy Storage	2	14%
Individual A/C or Heat Pump Units	0	0%

Window/Wall Units	0	0%
Boiler	0	0%
Central Furnace/Heater	0	0%
Room/Wall Heater	0	0%
Portable/Space Heater	0	0%
Strip/Baseboard Heat	0	0%
Unspecified AC	1	5%
Other	0	0%
Don't Know	1	5%
N	22	141%

Window/Wall Units	0	0%
Boiler	0	0%
Central Furnace/Heater	0	0%
Room/Wall Heater	0	0%
Portable/Space Heater	0	0%
Strip/Baseboard Heat	0	0%
Unspecified AC	3	21%
Other	3	21%
Don't Know	0	0%
N	14	114%

Participant Survey		
NEW8b. Which of the following best describes the efficiency level of the heating or air conditioning equipment that you purchased?:	COUNT	PERCENT
Standard Efficiency	4	18%
Above Average Efficiency	7	32%
Very High Efficiency	11	50%
Don't know	0	0%
N	22	100%

Nonparticipant Survey		
63. Which of the following best describes the efficiency level of the heating or air conditioning equipment that you purchased?:	COUNT	PERCENT
Standard Efficiency	3	21%
Above Average Efficiency	6	43%
Very High Efficiency	4	29%
Don't know	1	7%
N	14	100%

Participant Survey		
NEW8c. Do you recall the efficiency rating of the new equipment?	COUNT	PERCENT
8 SEER	1	13%
12 SEER	3	38%
20 SEER	1	13%
Don't know	3	38%
N	8	100%

Nonparticipant Survey		
64. Do you recall the efficiency rating of the new equipment?	COUNT	PERCENT
8 SEER	0	0%
13 SEER	2	67%
20 SEER	0	0%
Don't know	1	33%
N	3	100%

Participant Survey		
NEW8d. Why did you purchase heating or air conditioning equipment that was above average in efficiency?:	COUNT	PERCENT
Cost	7	64%
Energy Savings	3	27%
Looks	0	0%
Function	2	11%
Lifespan	2	11%
Recommendation	0	0%
Don't know	0	0%
N	11	112%

Nonparticipant Survey		
65. Why did you purchase heating or air conditioning equipment that was above average in efficiency?:	COUNT	PERCENT
Cost	4	44%
Energy Savings	1	11%
Looks	0	0%
Function	0	0%
Lifespan	0	0%
Recommendation	1	8%
Don't know	0	0%
N	9	63%

Participant Survey		
NEW8e. Did your interactions with the center influence your decision to purchase heating or air conditioning equipment that was above average in efficiency? Would you say that you were:	COUNT	PERCENT
Very Influenced	2	18%
Somewhat Influenced	4	36%
Not at all Influenced	5	45%
Don't know	0	0%
N	11	100%

Nonparticipant Survey		
66. Did your interactions with the center influence your decision to purchase heating or air conditioning equipment that was above average in efficiency? Would you say that you were:	COUNT	PERCENT
Very Influenced	0	0%
Somewhat Influenced	0	0%
Not at all Influenced	1	100%
Don't know	0	0%
N	1	100%

Participant Survey		
NEW9. If you had to replace some of the heating or air conditioning equipment at your restaurant right now, which of the following best describes the efficiency level that you would purchase:	COUNT	PERCENT
Standard Efficiency	2	4%
Above Average Efficiency	16	35%

Nonparticipant Survey		
67. If you had to replace some of the heating or air conditioning equipment at your restaurant right now, which of the following best describes the efficiency level that you would purchase:	COUNT	PERCENT
Standard Efficiency	10	16%
Above Average Efficiency	23	37%

Very High Efficiency	27	59%
Don't know	1	2%
N	46	100%

Very High Efficiency	27	43%
Don't know	3	5%
N	63	100%

Participant Survey		
NEW10. In the past year, have you purchased any new water heating equipment or equipment that uses hot water for your restaurant?	COUNT	PERCENT
Yes	19	28%
No	47	69%
Don't know	2	3%
N	68	100%

Nonparticipant Survey		
68. In the past year, have you purchased any new water heating equipment or equipment that uses hot water for your restaurant?	COUNT	PERCENT
Yes	12	16%
No	62	82%
Don't know	2	3%
N	76	100%

Participant Survey		
NEW10a. What types of equipment were installed?	COUNT	PERCENT
Gas Water Heater	13	45%
Electric Water Heater	2	7%
Gas Boiler	2	7%
Electric Boiler	1	3%
New Hot Water Nozzle for Dish Rinsing	2	7%
New Dishwasher	3	10%
Other	3	10%
Don't know	3	10%
N	29	100%

Nonparticipant Survey		
69. What types of equipment were installed?	COUNT	PERCENT
Gas Water Heater	5	42%
Electric Water Heater	5	42%
Gas Boiler	1	8%
Electric Boiler	0	0%
New Hot Water Nozzle for Dish Rinsing	0	0%
New Dishwasher	0	0%
Other	0	0%
Don't know	1	8%
N	12	100%

Participant Survey		
NEW10b. Which of the following best describes the efficiency level of the equipment that you purchased?:	COUNT	PERCENT
Standard Efficiency	8	42%
Above Average Efficiency	6	32%
Very High Efficiency	5	26%
Don't know	0	0%
N	19	100%

Nonparticipant Survey		
70. Which of the following best describes the efficiency level of the equipment that you purchased?:	COUNT	PERCENT
Standard Efficiency	5	42%
Above Average Efficiency	4	33%
Very High Efficiency	2	
Don't know	1	8%
N	12	83%

Participant Survey		
NEW10c. Do you recall the energy factor, or efficiency rating of the new equipment?:	COUNT	PERCENT
7.25 Seer	1	1%
A.O. Smith High Efficiency	1	1%
Don't know	68	97%
N	70	100%

Nonparticipant Survey		
71. Do you recall the energy factor, or efficiency rating of the new equipment?:	COUNT	PERCENT
Energy Star	1	17%
A.O. Smith High Efficiency	0	0%
Don't know	5	83%
N	6	100%

Participant Survey		
NEW10d. Why did you purchase this equipment that was above average in efficiency?:	COUNT	PERCENT
Cost	5	26%
Energy Savings	5	26%
Looks	0	0%
Function	1	5%
Lifespan	2	11%
Recommendation	0	0%
Required	0	0%
Don't know	0	0%
N	19	68%

Nonparticipant Survey		
72. Why did you purchase this equipment that was above average in efficiency?:	COUNT	PERCENT
Cost	5	38%
Energy Savings	0	0%
Looks	0	0%
Function	0	0%
Lifespan	0	0%
Recommendation	2	15%
Required	1	8%
Don't know	0	0%
N	13	62%

Participant Survey		
NEW10e. Did your interactions with the center influence your decision to purchase water heating equipment or equipment that uses hot water that was above average in efficiency? Would you say that you were:	COUNT	PERCENT
Very Influenced	0	0%
Somewhat Influenced	9	82%
Not at all Influenced	2	18%
Don't know	0	0%
N	11	100%

Nonparticipant Survey		
73. Did your interactions with the center influence your decision to purchase water heating equipment or equipment that uses hot water that was above average in efficiency? Would you say that you were:	COUNT	PERCENT
Very Influenced	0	0%
Somewhat Influenced	0	0%
Not at all Influenced	0	0%
Don't know	0	0%
N	0	0%

Participant Survey		
NEW11. If you had to replace some of the water heating or hot water using equipment at your restaurant right now, which of the following best describes the efficiency level that you would purchase:	COUNT	PERCENT
Standard Efficiency	3	6%
Above Average Efficiency	22	45%
Very High Efficiency	23	47%
Don't know	1	2%
N	49	100%

Nonparticipant Survey		
74. If you had to replace some of the water heating or hot water using equipment at your restaurant right now, which of the following best describes the efficiency level that you would purchase:	COUNT	PERCENT
Standard Efficiency	14	22%
Above Average Efficiency	27	42%
Very High Efficiency	21	32%
Don't know	3	5%
N	65	100%

Participant Survey			
Q58. Within the last few years, how many times have you passed on material obtained at the Center to others?			
	COUNT	PERCENT	
0	18	27%	
1	22	33%	
2	13	19%	
3	14	21%	
N	67	100%	

Participant Survey			
Q59. Within the last few years, how many times have you used technical data from the Center to support a decision?			
	COUNT	PERCENT	
0	29	43%	
1	22	33%	
2	11	16%	
3	5	7%	
N	67	100%	

Participant Survey			
Q60. Within the last few years, how many times have you demonstrated or explained to a colleague the benefits of energy efficiency?			
	COUNT	PERCENT	
0	13	19%	
1	21	31%	
2	15	22%	
3	18	27%	
N	67	100%	

Nonparticipant Survey			
Q75. Within the last few years, how many times have you demonstrated or explained to a colleague the benefits of energy efficiency?			
	COUNT	PERCENT	
0	39	51%	
1	20	26%	
2	9	12%	
3	8	11%	
N	76	100%	

Participant Survey			
Q61. Within the last few years, how many times have you promoted or implemented changes to internal policies or practices in response to information from colleagues about energy efficiency?			
	COUNT	PERCENT	
0	14	21%	
1	27	40%	
2	13	19%	
3	13	19%	
N	67	100%	

Nonparticipant Survey			
Q76. Within the last few years, how many times have you promoted or implemented changes to internal policies or practices in response to information from colleagues about energy efficiency?			
	COUNT	PERCENT	
0	42	57%	
1	16	22%	
2	8	11%	
3	8	11%	
N	74	100%	

Participant Survey			
Q62. Within the last few years, how many times have you suggested or insisted that a partner or contractor incorporate ideas learned at the Center?			
	COUNT	PERCENT	
0	25	37%	
1	28	42%	
2	9	13%	
3	5	7%	
N	67	100%	

Participant Survey		
Q63. Within the last few years, how many times have you discussed ideas presented at the Center with a manufacturer or manufacturer's representative to encourage product change?		
	COUNT	PERCENT
0	25	37%
1	24	36%
2	9	13%
3	9	13%
N	67	100%

Participant End User Survey Final Call Disposition

DISPOSITION	COUNT	DESCRIPTION
TOTAL SAMPLE	462	Sample received from client
COMPLETES	69	Completed surveys
INCOMPLETES	2	Surveys that were terminated before they were completed, but given to analyst in case there was enough data to benefit
APPOINTMENTS	26	These were outstanding at time of completion, but had been dialed multiple times during the course of the survey
ANSWERING MACHINES	48	These were outstanding at time of completion, but had been dialed multiple times during the course of the survey
REFUSALS	8	Refused to do the survey
DISCONNECTS	39	Phone number no longer in service
LANGUAGE BARRIERS	2	Did not speak English
DUPLICATES	17	These phone numbers reached someone that had already completed a survey
DRNA	120	These people either claimed they had never heard of or attended FSTC, or the person that we were trying to contact was no longer with the firm.
RESIDENTIAL/FAX	14	We could not reach company using these phone numbers
NON FOOD	100	T&T at FOOD PREPARE and SERVE
NO INFLUENCE	17	Had no influence on purchase

Nonparticipant End User Survey Final Call Disposition

DISPOSITION	COUNT	DESCRIPTION
TOTAL SAMPLE	2105	Sample received from client
COMPLETES	76	Completed surveys
INCOMPLETES	10	Surveys that were terminated before they were completed, DATA NOT GIVEN TO ANALYST
APPOINTMENTS	789	These were outstanding at time of completion, but had been dialed multiple times during the course of the survey
ANSWERING MACHINE	173	These were outstanding at time of completion, but had been dialed multiple times during the course of the survey
BUSY	131	These were outstanding at time of completion, but had been dialed multiple times during the course of the survey
NO REPLY	345	These were outstanding at time of completion, but had been dialed multiple times during the course of the survey
REFUSALS	128	Refused to do the survey
DISCONNECTS	158	Phone number no longer in service
LANGUAGE BARRIER	137	Did not speak English
DUPLICATES	0	These phone numbers reached someone that had already completed a survey
DRNA	106	These people either claimed they had never heard of or attended FSTC, or the person that we were trying to contact was no longer with the firm.
RESIDENTIAL/FAX	46	We could not reach company using these phone numbers
NON FOOD	6	T&T at FOOD PREPARE and SERVE
NO INFLUENCE	0	Had no influence on purchase

Appendix C
Final Designer Instrument and Responses

Company Name

Phone #:

Contact Name

Time Start

Good (morning/afternoon). My name is _____. I am calling on behalf of the Food Service Technology Center in California. We are conducting a survey about how the food service sector looks at energy efficiency. The results of the study are to be reported to the California Public Utilities Commission. The survey will take approximately 15 to 20 minutes. Your responses will be kept confidential.

May I proceed?

1. Does your company design kitchens for the food service market?

- Yes No (Thank and Terminate)

Response	Frequency of Response	
	N	%
Yes	13	100%
Total	13	100%

A good portion of the interview questions request quantifiable responses, however I would like you to feel free to expand on you answers as you see appropriate. What we are trying to understand is how the market for energy efficient kitchen equipment works, or doesn't work.

2. What is your title?

- Consultant. Engineer Manager
 President Owner Architect Other:

Response	Frequency of Response	
	N	%
CEO	1	8%
Chief Operating Officer	1	8%
Director	1	8%
Executive VP	1	8%
Founder	1	8%
Manager	2	15%
Owner	2	15%
Partner	2	15%
President	1	8%
VP	1	8%

Total	13	100%
-------	----	------

3. What are your primary responsibilities?

Response	Frequency of Response	
	N	%
All	4	31%
Company Operations	1	8%
Conceptual design	1	8%
Design	1	8%
Operations and Design	1	8%
Principal In Charge of Design and Concept Development	1	8%
Project Management	1	8%
Project Management, Production of Drawings	1	8%
Project Manager	1	8%
Strategic planning, Market research, Concept planning	1	8%
Total	13	100%

4. What are your company's areas of expertise?

Response	Frequency of Response	
	N	%
Conceptual design, Detailed design, Operations consulting, Equipment specifications, Management information services	1	8%
Conceptual design, Full-service design, Operational consulting	1	8%
Conceptual design, Master planning	1	8%
Design, Operations	1	8%
Design, Project Management, Specialty equipment studies	1	8%
Design, Site analysis, planning, consulting	1	8%
Detailed design, turn-key construction	1	8%
Facility design, concept to completion	1	8%

Food service facility design	1	8%
Master planning, Kitchen design, Market analysis, Operational consulting	1	8%
Planning, Conceptual studies, Operating analysis, Waste management studies, Detailed design	1	8%
Pre-planning, Master Planning, Facility Design, Training, Implementation	1	8%
Strategic planning, Site selection, Market research, Menu development, Equipment spec's, Kitchen design	1	8%
Total	13	100%

5. Compared to other companies like yours, would you consider yourself to be small, medium or large in terms of revenue?

Small Medium Large

Response	Frequency of Response	
	N	%
S	2	15%
M	7	54%
L	4	31%
Total	13	100%

6. Would you please describe the types of customers that you typically work with?

Response	Frequency of Response	
	N	%
All	2	15%
Casino	1	8%
Chains	1	8%
Hospitality, Military, Retirement	1	8%
Independent restaurants, Chain restaurants	1	8%
Prisons, Hospitals, Schools, Country Clubs, Chains, Independent Restaurants	1	8%
Restaurants, Hotels, Cruise ships, Airlines, Theme parks	1	8%
Restaurants, schools, healthcare, business & industry, recreation, bars & nightclubs	1	8%

Universities & Colleges, Central Kitchens, Hospitals, Schools	1	8%
Universities & Colleges, Hotels, Corporations, Military, Convention Centers, Arenas	1	8%
Universities & colleges, Prisons, Hospitals, Restaurants	1	8%
Universities and colleges	1	8%
Total	13	100%

7. When working on a kitchen design, what are the types of companies you work with?

Response	Frequency of Response	
	N	%
Owners, Architects	3	23%
Owners, Architects, Conceptual designers	2	15%
Owners, Architects, Engineers, Contractors, Interior Designers	1	8%
Owners, Architects, Engineers, Designers, Contractors	1	8%
Owners, Architects, Engineers, Developers, Interior Designers, Operators	1	8%
Owners, Architects, Engineers, Food Service Mgmt. Companies, Operators	1	8%
Owners, Architects, Engineers, Manufacturers	1	8%
Owners, Architects, Engineers, Plumbers, Contractors, Fire Protection	1	8%
Owners, Architects, Manufacturers, Component designers, Permit planners	1	8%
Owners, Architects, Operators	1	8%
Total	13	100%

We are particularly interested in understanding how decisions are made regarding the design of required energy-using equipment such as griddles, hoods, and refrigerators. I am going to read a list of statements that may or may not apply to your experience when you are designing this type of equipment. Please indicate, on a scale of 1 to 10, whether you agree or disagree. A 1 means you strongly disagree and a 10 means you strongly agree. When I mention “energy efficient equipment”, I mean equipment that has the same use but uses less energy than another similar piece of equipment.

8. Our customers never request information on energy efficiency. Organizational practices

_____ DK

Response	Frequency of Response	
	N	%
2	2	15%
3	2	15%
4	1	8%
6	1	8%
7	3	23%
8	3	23%
9	1	8%
Total	13	100%

9. Our customers look at only the first cost in the design of a kitchen. Organizational practices

_____ DK

Response	Frequency of Response	
	N	%
1	2	15%
3	1	8%
4	1	8%
5	3	23%
7	1	8%
8	2	15%
9	1	8%
10	2	15%
Total	13	100%

10. When we select equipment, the most important consideration is immediate delivery. Organizational practices long term vs. short term

_____ DK

Response	Frequency of Response	
	N	%
1	3	23%

2	4	31%
3	2	15%
4	1	8%
5	2	15%
8	1	8%
Total	13	100%

11. Our company includes information on the long run operating and maintenance costs of equipment in its initial design estimates. Organizational practices long term vs. short term

_____ DK

Response	Frequency of Response	
	N	%
1	2	15%
3	2	15%
4	1	8%
5	2	15%
6	3	23%
7	2	15%
8	1	8%
Total	13	100%

12. When we select equipment, the most important issue is its initial cost. Organizational practices long term vs. short term

_____ DK

Response	Frequency of Response	
	N	%
1	3	23%
2	2	15%
3	5	38%
4	1	8%
6	1	8%
10	1	8%
Total	13	100%

13. Investing extra money in energy efficient equipment would reduce our client's ability to take advantage of other investment opportunities. Organizational practices corp. strategy

_____ DK

Response	Frequency of Response	
	N	%
1	3	23%
2	1	8%
3	3	23%
4	3	23%
8	1	8%
10	1	8%
DK	1	8%
Total	13	100%

14. I don't see any reason to be proactive about energy efficiency in today's economy. Organizational practices corp. strategy

_____ DK

Response	Frequency of Response	
	N	%
1	7	54%
2	3	23%
3	1	8%
4	1	8%
7	1	8%
Total	13	100%

15. What types of the kitchen equipment do you specify for your customers?

Response	Frequency of Response	
	N	%
All types	12	92%
None	1	8%
Total	13	100%

Because we feel that your interactions with dealers may vary for different types of equipment, we want to ask you questions about cooking, refrigeration, and ventilation (or hood) equipment separately. Please rank the following statements on a 1 to 10 scale like we just used with a 1 meaning you strongly disagree and a 10 meaning you strongly agree.

16. Our company has the expertise to select energy efficient cooking equipment. Info & search costs

_____ | DK/NA 16a

Response	Frequency of Response	
	N	%
5	2	15%
7	2	15%
8	3	23%
9	3	23%
10	3	23%
Total	13	100%

What number would you give for refrigeration equipment?

_____ | DK/NA 16b

Response	Frequency of Response	
	N	%
5	1	8%
6	1	8%
7	2	15%
8	2	15%
9	2	15%
10	5	38%
Total	13	100%

For hoods?

_____ | DK/NA 16c

Response	Frequency of Response	
	N	%
5	1	8%

6	1	8%
7	1	8%
8	3	23%
9	2	15%
10	5	38%
Total	13	100%

17. It's hard to get a handle on the benefits of energy efficient cooking equipment without a lot of work. Info & search costs

_____ | DK/NA 17a

Response	Frequency of Response	
	N	%
3	2	15%
4	3	23%
5	1	8%
6	3	23%
7	2	15%
8	2	15%
Total	13	100%

What number would you give for refrigeration equipment?

_____ | DK/NA 17b

Response	Frequency of Response	
	N	%
2	2	15%
4	3	23%
5	3	23%
6	2	15%
7	1	8%
8	2	15%
Total	13	100%

For hoods?

_____ | DK/NA 17c

Response	Frequency of Response	
	N	%
2	1	8%
4	7	54%
5	2	15%
7	2	15%
8	1	8%
Total	13	100%

18. Determining if an energy efficient piece of cooking equipment would be worthwhile to put in our designs requires too many resources. Info & search costs

_____ | DK/NA 18a

Response	Frequency of Response	
	N	%
1	1	8%
2	1	8%
3	3	23%
4	3	23%
5	1	8%
6	1	8%
7	1	8%
8	2	15%
Total	13	100%

What number would you give for refrigeration equipment?

_____ | DK/NA 18b

Response	Frequency of Response	
	N	%
1	1	8%
2	1	8%
3	5	38%
4	2	15%
5	1	8%
6	1	8%

7	1	8%
8	1	8%
Total	13	100%

For hoods?

_____ | DK/NA 18c

Response	Frequency of Response	
	N	%
1	1	8%
2	4	31%
3	2	15%
4	1	8%
5	1	8%
6	2	15%
7	2	15%
Total	13	100%

19. It is difficult to put energy efficient cooking equipment in my design since it is not always available. Product availability

_____ | DK/NA 19a

Response	Frequency of Response	
	N	%
1	1	8%
2	1	8%
3	4	31%
4	2	15%
5	2	15%
7	2	15%
DK	1	8%
Total	13	100%

What number would you give for refrigeration equipment?

_____ | DK/NA 19b

Response	Frequency of Response	
	N	%
1	2	15%
2	3	23%
3	1	8%
4	1	8%
5	2	15%
6	2	15%
7	1	8%
DK	1	8%
Total	13	100%

For hoods?

_____ | DK/NA 19c

Response	Frequency of Response	
	N	%
1	3	23%
2	1	8%
3	2	15%
4	1	8%
5	3	23%
7	2	15%
DK	1	8%
Total	13	100%

Now I have a few general questions.

20. How do you generally seek out information on the energy efficiency or production efficiency of equipment that you specify for you clients?

Response	Frequency of Response	
	N	%
Manufactureres rep's, Manufacturers Engineers	1	8%
Manufacturers rep's, Manufacturers Engineer	1	8%

Manufacturers rep's, Manufacturing engineers, Third party test results	1	8%
Manufacturers rep's, Manufacturing engineers, Utilities	1	8%
Manufacturing engineer	1	8%
Manufacturing engineers, Industry tests, Utility tests	1	8%
Spec. Sheets	1	8%
Spec. Sheets, Manufacturers rep's	2	15%
Spec. Sheets, Manufacturers rep's, Utility centers	1	8%
Spec. sheets, Manufacturing Engineer	1	8%
Spec. Sheets, Third party documentation	1	8%
Third party internet websites such as ARI, FSTC, NSF and Manufacturers rep's	1	8%
Total	13	100%

21. Have you ever heard of the Food Services Technology Center (the Center) in California? Linkage 6

- Yes
- No (GO TO 29)
- DK (GO TO 29)

Response	Frequency of Response	
	N	%
No	5	38%
Yes	8	62%
Total	13	100%

22. Where did you hear about the Center? Linkage 6

- Manufacturer
- Publication
- Trade Show
- Other End User
- Utility
- Dealer
- Seminar
- Other: _____

Response	Frequency of Response	
	N	%
Co-worker	1	13%
Dealer	2	25%
Involved in initial design of FSTC	1	13%
Manufacturer	1	13%
Publication	1	13%
Seminar	1	13%
Trade show	1	13%
Total	8	100%

23. Have you ever been contacted by the Center regarding energy efficient equipment?
Linkage 6

- Yes (If yes, how many times over the last three years?____) 23a
- No (GO TO 25)
- DK (GO TO 25)

Response	Frequency of Response	
	N	%
N	4	50%
Y	3	38%
DK	1	13%
Total	8	100%

23a

Response	Frequency of Response	
	N	%
1	1	33%
12	1	33%
DK	1	33%
Total	3	100%

24. What was the reason the Center contacted you? Linkage 6

Response	Frequency of Response	
	N	%
Energy Efficiency	2	67%
DK	1	33%
Total	3	100%

25. Have you ever contacted the Center regarding the performance of equipment?
Linkage 6

- Yes (If yes, how many times over the last three years?____) 25a
- No (GO TO 27)
- DK (GO TO 27)

Response	Frequency of Response	
	N	%
No	6	75%
Yes	2	25%
Total	8	100%

25a

Response	Frequency of Response	
	N	%
1	1	50%
3	1	50%
Total	2	100%

26. What was the typical reason you contacted the Center? Linkage 6

Response	Frequency of Response	
	N	%
Evaluation of equipment options	1	50%

Unbiased information on equipment performance	1	50%
Total	2	100%

27. Do you know anyone in the restaurant business who has ever attended an activity at the Center or attended a seminar the FSTC (or Fisher-Nickel)? Linkage 6

- Yes
- No (GO TO 29)
- DK (GO TO 29)

Response	Frequency of Response	
	N	%
No	6	75%
Yes	2	25%
Total	8	100%

28. What was their overall impression of what they learned? Linkage 6

_____DK

Response	Frequency of Response	
	N	%
Positive impression. Learned about specific products and their energy efficiency.	1	50%
Very good	1	50%
Total	2	100%

29. Have you ever heard of the American Society for Testing and Materials, often referred to as the ASTM? Linkage 13

- Yes
- No (GO TO 33)
- DK (GO TO 33)

Response	Frequency of Response	
	N	%
Yes	12	92%
No	1	8%
Total	13	100%

30. Where did you hear about the ASTM? Linkage 13

- Manufacturer Publication Trade Show
 Other End User Utility Dealer
 Other: _____

Response	Frequency of Response	
	N	%
Architect	1	8%
FCSI	1	8%
Manufacturer	3	25%
NAFEM	1	8%
Publication	2	17%
School	2	17%
Trade show	1	8%
DK	1	8%
Total	12	100%

31. Have you ever contacted the manufacturer or the FSTC regarding the performance of equipment? Linkage 13

- Yes (If yes, how many times over the last three years?____) 33a
 No (GO TO 33)
 DK (GO TO 33)

Response	Frequency of Response	
	N	%
Yes	12	100%
Total	12	100%

31a

Response	Frequency of Response	
	N	%
2	1	8%
4	1	8%
9	1	8%
12	2	17%
30	3	25%
30 to 40	1	8%
35	1	8%
10950	1	8%
DK	1	8%
Total	12	100%

32. What was the reason you contacted the manufacturer or the FSTC? Linkage 13

Response	Frequency of Response	
	N	%
Energy efficiency information	1	8%
Lack of information on spec. sheets	1	8%
Obtain additional information not on spec. sheet	3	25%
Obtain information for customer	1	8%
Obtain information for customer for comparison of equipment	1	8%
Operating cost information	1	8%
Provide feedback to manufacturer on equipment performance, operations and maintenance	1	8%
Verify spec's	1	8%
Verify suitability of product	1	8%
Water consumption information	1	8%
Total	12	100%

33. There are standard test methods adopted by the ASTM which provide accurate, reproducible results on production efficiency and energy efficiency for different pieces of kitchen equipment (i.e., griddles, ovens, fryers). How aware are you of those methods? Linkage 13

Not at all aware (GO TO 38)

- Somewhat aware
- Very aware
- DK (GO TO 38)

Response	Frequency of Response	
	N	%
Not aware	9	69%
Somewhat aware	3	23%
Very aware	1	8%
Total	13	100%

34. How did you hear of these testing methods? Linkage 13

- FSTC
- Publication
- Trade Show
- Manufacturer
- Utility
- ASTM
- Other Designer
- Other:

Response	Frequency of Response	
	N	%
FCSI Seminar	2	50%
Publication	2	50%
Total	4	100%

35. How many times have you offered your customers information on how specific pieces of equipment scored on these tests? Linkage 13

- _____ DK

Response	Frequency of Response	
	N	%
0	1	25%
2	2	50%
10	1	25%
Total	4	100%

36. How many times have your customers asked about how specific pieces of equipment scored on these tests? Linkage 13

_____ DK

Response	Frequency of Response	
	N	%
0	3	75%
1	1	25%
Total	4	100%

37. How many times have you asked dealers or manufacturer representatives about how specific pieces of equipment scored on *these tests* before considering them? Linkage
13

_____ DK

Response	Frequency of Response	
	N	%
0	2	50%
2	2	50%
Total	4	100%

38. Over the last several years, how many times have you tried to sell your colleagues in the restaurant business on the *idea* of energy efficient restaurant equipment? attitude

_____ DK

Response	Frequency of Response	
	N	%
0	2	15%
2	2	15%
3	1	8%
30	1	8%
36 to 48	1	8%
6	2	15%
6 to 12	1	8%
10	1	8%
12	2	15%
Total	13	100%

39. How many times have you asked your dealers, manufacturers, or their representatives about cooking equipment that saves energy? Behavior

_____ DK

Response	Frequency of Response	
	N	%
0	2	15%
10	2	15%
12	1	8%
12 to 15	1	8%
2	2	15%
20	1	8%
200	1	8%
6	2	15%
720	1	8%
Total	13	100%

40. How about refrigeration equipment which saves energy? Behavior

_____ DK

Response	Frequency of Response	
	N	%
1	2	15%
2	1	8%
4	1	8%
5	2	15%
6	3	23%
10	1	8%
12	1	8%
200	1	8%
360	1	8%
Total	13	100%

41. How about ventilation equipment which saves energy? Behavior

_____ DK

Response	Frequency of Response	
	N	%
0	2	15%
2	2	15%
4	2	15%
5	1	8%
6	1	8%
10	1	8%
12	3	23%
360	1	8%
Total	13	100%

42. How many times have you discussed with your customers the energy efficiency of cooking equipment? Behavior

_____ DK

Response	Frequency of Response	
	N	%
0	2	15%
2	2	15%
3	1	8%
5	1	8%
6	1	8%
12	2	15%
15	1	8%
20	1	8%
25	1	8%
240	1	8%
Total	13	100%

43. How many times have your customers asked about the energy efficiency of cooking equipment? Behavior

_____ DK

Response	Frequency of Response	
	N	%
0	6	46%
1	1	8%
5	1	8%
6	1	8%
8	1	8%
10	1	8%
15	1	8%
80	1	8%
Total	13	100%

44. How many times have you discussed with your customers the energy efficiency of refrigeration equipment? Behavior

_____ DK

Response	Frequency of Response	
	N	%
0	3	23%
2	1	8%
3	1	8%
4	1	8%
5	1	8%
6	1	8%
7	1	8%
12	2	15%
20	1	8%
120	1	8%
Total	13	100%

45. How many times have your customers asked about the energy efficiency of refrigeration equipment? Behavior

_____ DK

Response	Frequency of Response	
	N	%
0	7	54%
1	1	8%
4	1	8%
6	1	8%
8	2	15%
40	1	8%
Total	13	100%

46. How many times have you discussed with your customers the efficiency of ventilation equipment? Behavior

_____ DK

Response	Frequency of Response	
	N	%
0	4	31%
4	2	15%
10	1	8%
12	4	31%
20	1	8%
120	1	8%
Total	13	100%

47. How many times have your customers asked about the efficiency of ventilation equipment? Behavior

_____ DK

Response	Frequency of Response	
	N	%
0	5	38%
2	2	15%
4	1	8%
5	1	8%
8	1	8%
12	2	15%

40	1	8%
Total	13	100%

48. When designing a kitchen, what aspects do you give the highest priority? (Don't Read, check as they talk) (More than one answer allowed) attitude

- UL Listing Flow of work space Efficiency
 Looks Reliability of equipment Price
 Other: _____

Response	Frequency of Response	
	N	%
Price, Quality, Flexibility/Adaptability, Availability of Service	1	8%
Work Flow	3	23%
Work Flow, Ease of cleaning	1	8%
Work Flow, Efficiency	3	23%
Work Flow, Efficiency, Price	1	8%
Work Flow, Labor efficiency	1	8%
Work Flow, Operational efficiency	1	8%
Work Flow, Price	1	8%
Work Flow, Price, Operating costs	1	8%
Total	13	100%

49. What percent of the time do you recommend equipment that saves your customer energy ? Behavior

- _____ DK

Response	Frequency of Response	
	N	%
0	1	8%
10	2	15%

20	2	15%
25	1	8%
30	1	8%
33	1	8%
50	2	15%
60	1	8%
100	2	15%
Total	13	100%

50. What percent of the time does your customer request equipment that saves energy?
Behavior

DK

Response	Frequency of Response	
	N	%
0	3	23%
2	1	8%
3	1	8%
5	1	8%
10	4	31%
15	1	8%
25	1	8%
40	1	8%
Total	13	100%

51. Have you ever heard of the magazine, *Foodservice Equipment Reports*? Linkage #6

Yes

No (GO TO 53)

DK (GO TO 53)

Response	Frequency of Response	
	N	%
No	1	8%
Yes	12	92%
Total	13	100%

52. Do you currently receive the *Foodservice Equipment Reports*? Linkage #6

- Yes
- No
- DK

Response	Frequency of Response	
	N	%
No	3	23%
Yes	9	69%
DK	1	8%
Total	13	100%

53. What are the most important factors for your customers in selecting the cooking, refrigeration, and ventilation equipment? Open Opportunity

Response	Frequency of Response	
	N	%
Cleanability, Operating costs	1	8%
Durability, Flexibility	1	8%
Features, Reliability	1	8%
Functionality, Performance, Space considerations	1	8%
Lifecycle costs, Flexibility	1	8%
Performance, Reliability, Price	1	8%
Price	2	15%
Price, Delivery time, Service issues	1	8%
Price, Efficiency, Availability, Serviceability	1	8%
Price, Operational Functionality	1	8%
Quality, Ease of Service, Durability	1	8%
Quality, Maintenance costs, Operational efficiency	1	8%
Total	13	100%

54. On a scale of 1 to 10, with 1 being very low priority, where do you think your customers rate energy efficiency in their decisions to purchase equipment? Open Opportunity

Response	Frequency of Response	
	N	%
2	4	31%
3	2	15%
4	5	38%
5	1	8%
5 to 6	1	8%
Total	13	100%

55. What are your clients priorities with respect to equipment specifications?

Response	Frequency of Response	
	N	%
Durability, Serviceability	1	8%
Flexibility, Serviceability	1	8%
Operational Functionality, Chef's choice, Price	1	8%
Performance, Price	1	8%
Price	2	15%
Price, Delivery time, Service issues	1	8%
Price, Features	1	8%
Price, Functionality	1	8%
Price, Reliability, Serviceability	1	8%
Price, Serviceability	1	8%
Reliability, Availability of service	1	8%
Serviceability, Availability of parts	1	8%
Total	13	100%

56. What kinds of changes do you think would be necessary in your market to make energy efficiency a high priority when a customer thinks about buying equipment? Open Opportunity

Response	Frequency of Response	
	N	%
Creation of energy efficiency rating system and including ratings on spec. sheets	1	8%
Increased customer education	2	15%
Increased education	1	8%
Increased education on how to accurately determine energy savings	1	8%
Increased education, Increased product awareness	1	8%
Increased education, Increased utility costs	1	8%
Increased energy costs	2	15%
Increased information	2	15%
Increased manufacturer advertising on energy efficiency	1	8%
Increased utility costs, Increased customer education	1	8%
Total	13	100%

That completes this survey. On behalf of the FSTC, I thank you for your time.

Finish Time _____

Designer Survey Final Call Disposition

ID	Disposition Description	Final Call Disposition
1	COMPLETE	13
2	Schedule Call Back	0
3	Refuses to do Survey	2
4	Refuse-Take off list	0
5	Not in Service	0
6	Foreign Speaking	0
7	Eligible Respondent Not Available	0
8	Call Back Later	0
9	Answering Machine	3
10	Fax Machine	0
11	Pager/Cellular Phone	0
12	No Answer	0
13	Busy	0
14	Did Not Pass Screener	0
17	Terminate (TQ)	0
18	Other	1
19	Caller ID	0
20	Never Called Point	23
	Total Survey Points	42

Average Survey Length: 23 Minutes

Appendix D
Final Manufacturer Instrument and Responses

Company Name _____ Phone #: _____

Contact Name _____ Time Start _____

Good (morning/afternoon). My name is _____. The state of California requires evaluation of their energy efficiency programs. We are conducting a survey about how the food service sector looks at energy efficiency. The survey will take approximately 15 to 20 minutes. Your responses will be kept confidential.

Do you have time to talk with me to help with our evaluation?

1. Does your company manufacturer equipment used by the food service market?

- Yes
 No (Thank and Terminate)

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
Yes	12	100%	11	100%	12	100%
Total	12	100%	11	100%	12	100%

A good portion of the interview questions request quantifiable responses, however I would like you to feel free to expand on you answers as you see appropriate. What we are trying to understand is how the market for energy efficient kitchen equipment works, or doesn't work.

2. What is your title?

- Sales Rep. Engineer Manager
 President VP Other: _____

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
Director	0	0%	1	9%	2	17%
Executive VP	0	0%	0	0%	1	8%
General Manager	0	0%	0	0%	1	8%
Manager	4	33%	6	55%	4	33%
Marketing Coordinator	1	8%	0	0%	0	0%
President	2	17%	3	27%	3	25%

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
VP	5	42%	1	9%	1	8%
Total	12	100%	11	100%	12	100%

3. What are your primary responsibilities? _____

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
Advertising & Marketing	0	0%	1	9%	0	0%
All	2	17%	3	27%	2	17%
All Operations - COO	0	0%	0	0%	1	8%
Business Development	0	0%	0	0%	1	8%
Customer Service	0	0%	1	9%	0	0%
Marketing	5	42%	0	0%	2	17%
Marketing & Sales	1	8%	0	0%	0	0%
Marketing Communications	0	0%	1	9%	0	0%
Marketing Coordinator	1	8%	0	0%	0	0%
National Sales	0	0%	1	9%	1	8%
Operations	0	0%	0	0%	1	8%
P&L, Kitchen Ventilation Systems	0	0%	0	0%	1	8%
Product Manager	1	8%	0	0%	0	0%
Product Marketing	0	0%	1	9%	0	0%
Regional Sales	1	8%	0	0%	0	0%
Sales	0	0%	0	0%	2	17%
Sales & Marketing	0	0%	2	18%	1	8%

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
Sales, Marketing & Operations	0	0%	1	9%	0	0%
Service	1	8%	0	0%	0	0%
Total	12	100%	11	100%	12	100%

4. Our records indicate that you manufacture [XXX] equipment. Is this true?

Yes

No (Specify why: _____)

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
Yes	12	100%	10	91%	12	100%
No, Purchase and repackage only	0	0%	1	9%	0	0%
Total	12	100%	11	100%	12	100%

5. Are there any other types of equipment that you manufacturer for this sector?

Cooking

Refrigeration

Ventilation

No other types

Other: _____

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
No	8	67%	8	73%	11	92%
Cooking, tables, sinks, countertops	0	0%	0	0%	1	8%

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
Glass washers, beer dispensing systems	0	0%	1	9%	0	0%
Hot Holding	1	8%	0	0%	0	0%
Microwave, Food warming, Slicing	0	0%	1	9%	0	0%
Prep equipment, stainless steel countertops	0	0%	1	9%	0	0%
Refrigeration, Food preparation, Weighing	1	8%	0	0%	0	0%
Refrigeration, Ventilation, Serving	1	8%	0	0%	0	0%
Ventilation, Filter machines, Preparation equipment	1	8%	0	0%	0	0%
Total	12	100%	11	100%	12	100%

6. Would you please describe how you market your equipment?

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
Advertise in industry publications, Dealers, Distributors	1	8%	0	0%	0	0%
Brochures, Printed literature, Trade shows, Industry publication advertising, Press releases	0	0%	0	0%	1	8%
Brochures, Spec. sheets, Trade shows, Sales representatives	1	8%	0	0%	0	0%
Catalog, Dealers, Sales Representatives	0	0%	1	9%	0	0%
Dealer Network	0	0%	1	9%	0	0%
Dealer/Distributor network, Trade shows	1	8%	0	0%	0	0%
Dealers	1	8%	0	0%	0	0%
Dealers and Sales Representatives	0	0%	1	9%	0	0%
Dealers, Direct to chains, trade shows, industry publication advertising	1	8%	0	0%	0	0%

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
Develop literature, advertise in publications	1	8%	0	0%	0	0%
Direct factory sales people and manufacturers representatives	1	8%	0	0%	0	0%
Direct sales force	0	0%	0	0%	1	8%
Direct sales organization and branch distribution network	0	0%	1	9%	0	0%
Direct sales, target market are chain customers	1	8%	0	0%	0	0%
Distribution partners	0	0%	0	0%	1	8%
Distributors, Contractors, Magazine advertising, Trade shows, Direct mail	0	0%	0	0%	1	8%
Distributors, trade shows, advertising in publications, direct mailing	0	0%	1	9%	0	0%
Food service rep's, Direct to national accounts, Advertising in publications	0	0%	0	0%	1	8%

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
Industry trade publications, trade shows, direct mail, website, distribution channels	0	0%	1	9%	0	0%
Internet advertising, Advertising, Internal sales force, Dealer network	1	8%	0	0%	0	0%
Manufacturers Representatives, Trade shows, Magazine advertisements, Company catalog	0	0%	1	9%	0	0%
Manufacturer's Rep's who call on Dealers	0	0%	1	9%	0	0%
Manufacturers rep's, Dealers, Trade shows, Direct mail	1	8%	0	0%	0	0%
Manufacturers rep's, Direct contacts, Trade shows, ASHRAE journal, consultant Magazine	0	0%	0	0%	1	8%
Manufacturers rep's, Direct to chain accounts, Trade shows, Direct mail, MAECO meetings	0	0%	0	0%	1	8%
Manufacturers rep's, Direct to national accounts, ASHRAE, Tradeshow	0	0%	0	0%	1	8%

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
Mechanical rep's, Food service dealers, Direct to chains, Trade shows, ASHRAE	0	0%	0	0%	1	8%
Network of sales rep's, both food service and mechanical, Trade shows, ASHRAE	0	0%	0	0%	1	8%
Solely through Grainger. They are private label manufacturer for them.	0	0%	0	0%	1	8%
Trade publications, tradeshow, distributors, manufacturers sales representatives	0	0%	1	9%	0	0%
Trade shows	0	0%	1	9%	0	0%
Trade shows, advertising in magazines	1	8%	0	0%	0	0%
Trade shows, designer network	0	0%	1	9%	0	0%
Trade shows, Manufacturers rep's, direct marketing	0	0%	0	0%	1	8%
Trade shows, Publications, Distributors, Sales Representatives	1	8%	0	0%	0	0%
Total	12	100%	11	100%	12	100%

7. What different ways does your product get to the end user?

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
50% through contractors, 50% direct to restaurants	0	0%	0	0%	1	8%
Branch distribution network	0	0%	1	9%	0	0%
Contractors and Dealers	0	0%	0	0%	1	8%
Dealer network	3	25%	2	18%	0	0%
Dealer/Distributor Network	3	25%	0	0%	0	0%
Dealer/Distributor Network, Sometimes direct to chains	1	8%	0	0%	0	0%
Dealers and Distributors	0	0%	1	9%	0	0%
Dealers, Designers and Contractors	0	0%	1	9%	0	0%
Direct sales and Distributor network	0	0%	1	9%	0	0%
Direct sales to the end user	0	0%	0	0%	1	8%
Distribute through OEM suppliers. Product is a component that more effectively filters grease and other effluents	0	0%	0	0%	1	8%
Distributor network	1	8%	1	9%	0	0%
Distributors	1	8%	0	0%	0	0%
Distributors and Contractors	0	0%	0	0%	1	8%

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
Distributors and contractors. Do not sell direct	0	0%	0	0%	1	8%
Distributors or Dealers	1	8%	0	0%	0	0%
Food service Dealers and Contractors	0	0%	0	0%	1	8%
Food service dealers/distributors and mechanical contractors	0	0%	0	0%	1	8%
Manufacturers Representatives and Distributors	0	0%	1	9%	0	0%
Mechanical contractors, Direct to chains, Food service dealers	0	0%	0	0%	1	8%
Mechanical contractors, Distributors, Direct to national accounts	0	0%	0	0%	1	8%
Mechanical contractors, Distributors, Direct to some accounts	0	0%	0	0%	1	8%
Mostly through dealer/distributor network. Large chains buy direct.	1	8%	0	0%	0	0%
Orders through Grainger	0	0%	0	0%	1	8%

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
Purchase through a Dealer	0	0%	1	9%	0	0%
Purchased through a Dealer	0	0%	1	9%	0	0%
Resold through Dealer network	0	0%	1	9%	0	0%
Through Dealer or shipped direct to customer	1	8%	0	0%	0	0%
Total	12	100%	11	100%	12	100%

8. Compared to other companies like yours, would you consider yourself to be small, medium or large in terms of revenue?

Small Medium Large

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
Small	6	50%	3	27%	4	33%
Medium	3	25%	5	45%	4	33%
Large	3	25%	3	27%	4	33%
Total	12	100%	11	100%	12	100%

We are particularly interested in understanding how decisions are made regarding the manufacturing of specific pieces of equipment. I am going to read a list of statements. Please indicate, on a scale of 1 to 10, whether you agree or disagree. A 1 means you strongly disagree and a 10 means you strongly agree.

9. The most important operational issue for our company is keeping our development costs for new equipment under control. Organizational practices corp. strategy

_____ DK

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
1	0	0%	1	9%	1	8%
2	2	17%	1	9%	1	8%
3	1	8%	0	0%	3	25%
4	2	17%	0	0%	1	8%
5	1	8%	3	27%	1	8%
6	1	8%	1	9%	0	0%
7	1	8%	1	9%	3	25%
8	2	17%	0	0%	0	0%
10	2	17%	4	36%	2	17%
Total	12	100%	11	100%	12	100%

10. Investing extra money in the manufacture of energy efficient equipment would reduce our ability to take advantage of other opportunities to invest in productions or sales efforts. Organizational practices corp. strategy

_____ DK

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
1	3	25%	2	18%	4	33%
2	1	8%	1	9%	1	8%
3	1	8%	3	27%	2	17%
4	1	8%	1	9%	1	8%
5	2	17%	2	18%	1	8%
6	2	17%	1	9%	0	0%
7	2	17%	0	0%	2	17%
8	0	0%	1	9%	1	8%
Total	12	100%	11	100%	12	100%

11. I don't see any reason to be proactive about energy efficiency in today's economy. Organizational practices corp. strategy

_____ DK

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
1	6	50%	6	55%	11	92%
2	3	25%	1	9%	0	0%
3	3	25%	3	27%	1	8%
7	0	0%	1	9%	0	0%
Total	12	100%	11	100%	12	100%

12. Determining if an energy efficient piece of equipment would be marketable requires too many resources. Info & search costs

_____ DK

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
1	3	25%	2	18%	5	42%
2	5	42%	3	27%	1	8%
3	1	8%	2	18%	4	33%
4	1	8%	1	9%	0	0%
5	1	8%	2	18%	2	17%
6	1	8%	0	0%	0	0%
8	0	0%	1	9%	0	0%
Total	12	100%	11	100%	12	100%

13. The people who benefit most from energy efficient equipment seldom have influence in the purchase decision. Split Incentives

_____ DK

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
1	4	33%	1	9%	0	0%
2	2	17%	2	18%	3	25%
3	1	8%	2	18%	4	33%
4	0	0%	0	0%	1	8%
5	2	17%	2	18%	1	8%
6	1	8%	2	18%	1	8%
7	1	8%	1	9%	2	17%
8	1	8%	0	0%	0	0%
10	0	0%	1	9%	0	0%
Total	12	100%	11	100%	12	100%

14. Energy efficient equipment is generally less reliable than standard equipment. Performance Uncertainty

_____ DK

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
1	6	50%	6	55%	5	42%
2	4	33%	1	9%	6	50%
3	1	8%	1	9%	0	0%
5	0	0%	2	18%	0	0%
8	1	8%	0	0%	0	0%
DK	0	0%	1	9%	1	8%
Total	12	100%	11	100%	12	100%

15. I don't see how we can recover the extra cost of manufacturing energy efficient equipment by increased prices given today's energy costs. Financial Uncertainty

_____ DK

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
1	1	8%	3	27%	3	25%
10	1	8%	0	0%	0	0%
2	2	17%	2	18%	3	25%
3	2	17%	2	18%	2	17%
4	0	0%	3	27%	0	0%
5	4	33%	0	0%	2	17%
7	1	8%	0	0%	1	8%
8	1	8%	0	0%	1	8%
DK	0	0%	1	9%	0	0%
Total	12	100%	11	100%	12	100%

16. It is difficult to find a market for energy efficient equipment. Product availability

_____ DK

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
1	4	33%	3	27%	3	25%
2	0	0%	2	18%	5	42%
3	4	33%	4	36%	0	0%
4	2	17%	0	0%	2	17%
5	2	17%	0	0%	1	8%
7	0	0%	1	9%	0	0%
8	0	0%	1	9%	1	8%
Total	12	100%	11	100%	12	100%

Now I have a few general questions.

17. Does your company offer any energy efficient equipment?

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
Yes	11	92%	8	73%	10	83%
No	1	8%	3	27%	2	17%
Total	12	100%	11	100%	12	100%

17a. Do you market it differently than your other equipment? 17b. If yes, how?

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
Yes	8	73%	6	75%	8	80%
No	3	27%	2	25%	2	20%
Total	11	100%	8	100%	10	100%

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
Additional value is described in marketing literature and quantified using a savings calculator tool	0	0%	1	17%	0	0%
Based on return on investment on energy savings	0	0%	0	0%	1	13%
Bring attention to energy efficiency aspects	0	0%	1	17%	0	0%
Emphasize energy efficiency	0	0%	0	0%	1	13%
Emphasize energy efficient features	1	13%	0	0%	0	0%
Emphasize payback based on energy savings	0	0%	0	0%	1	13%
Energy efficiency features and benefits are highlighted	1	13%	0	0%	0	0%

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
Energy efficiency is emphasized	0	0%	0	0%	3	38%
Energy efficiency is emphasized, paybacks are calculated for customer.	0	0%	0	0%	1	13%
Energy efficient equipment marketed more heavily in high energy cost areas	1	13%	0	0%	0	0%
Energy efficient features are highlighted	1	13%	2	33%	0	0%
Energy Star certification is highlighted	1	13%	0	0%	0	0%
Focus is on energy efficiency	1	13%	0	0%	0	0%
Increased emphasis on energy star rating and energy efficiency.	1	13%	0	0%	0	0%
More focused on chain accounts	0	0%	0	0%	1	13%
Point out energy savings benefits and features	0	0%	1	17%	0	0%
Promote equipment as energy efficient	1	13%	0	0%	0	0%
Provide energy savings estimates to the customer	0	0%	1	17%	0	0%
Total	8	100%	6	100%	8	100%

18. The Food Service Technology Center operates in San Ramon California. The Center conducts food service research and testing of equipment including cooking, refrigeration, and ventilation equipment. It also conducts a variety of workshops, seminars and conferences on the results of its research and testing. Have you ever heard of the Food Service Technology Center before? Linkage 6

- Yes
- No (GO TO 23)
- DK (GO TO 23)

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
Yes	8	67%	1	9%	9	75%
No	4	33%	10	91%	3	25%
Total	12	100%	11	100%	12	100%

19. Where did you hear about the Center? Open opportunity.

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
ASHRAE	0	0%	0	0%	1	11%
ASHRAE and Don Fisher	0	0%	0	0%	1	11%
At previous company, Lincoln Foods.	1	13%	0	0%	0	0%
Business associates within company	0	0%	0	0%	1	11%
California Restaurant Association	0	0%	0	0%	1	11%
CKV test facility in Illinois	0	0%	0	0%	1	11%
Cooking for Profit magazine	1	13%	0	0%	0	0%
Don Fisher	0	0%	0	0%	1	11%
Early 1980's when AQMD was raising issues regarding exhaust fumes	1	13%	0	0%	0	0%
Engineers within company	1	13%	0	0%	0	0%
Fellow employee	1	13%	0	0%	0	0%

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
From Don Fisher who I met at ASHRAE	0	0%	0	0%	1	11%
From largest customer	1	13%	0	0%	0	0%
Has heard Don Fischer speak and has read his publications	0	0%	1	100%	0	0%
Personally involved in initial development of Center	1	13%	0	0%	0	0%
Previously knew Don Fisher	0	0%	0	0%	1	11%
Through a Distributor	1	13%	0	0%	0	0%
Worked on McDonalds project with Don Fisher	0	0%	0	0%	1	11%
Total	8	100%	1	100%	9	100%

20. How many times have you attended the Center? _____ Linkage 6

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
0	5	63%	1	100%	2	22%
1	2	25%	0	0%	2	22%
2	0	0%	0	0%	2	22%
3	0	0%	0	0%	2	22%
4	0	0%	0	0%	1	11%
30	1	13%	0	0%	0	0%
Total	8	100%	1	100%	9	100%

21. How many times have you received information from the Center? _____ Linkage 6

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
0	0	0%	0	0%	1	11%
12	2	25%	0	0%	1	11%
20	2	25%	0	0%	1	11%
30	0	0%	0	0%	3	33%
30 - 40	0	0%	0	0%	1	11%
5	1	13%	0	0%	1	11%
50+	1	13%	0	0%	0	0%
6	0	0%	0	0%	1	11%
DK	2	25%	1	100%	0	0%
Total	8	100%	1	100%	9	100%

22. What is your primary connection with the Center? Open opportunity.

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
Corroboration on studies, Validation of test data	0	0%	0	0%	1	11%
Equipment testing	1	13%	0	0%	0	0%
Industry information	0	0%	0	0%	1	11%
Keeping up with industry trends	0	0%	0	0%	1	11%
Mailing/Publication list	0	0%	0	0%	1	11%
None	2	25%	0	0%	0	0%
Participation in studies	0	0%	0	0%	1	11%
Personal association with Don Fisher	0	0%	0	0%	1	11%
Subscribe to Email and publications list	1	13%	0	0%	0	0%

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
Third party consulting. Participation in an industry panel with Don Fisher	0	0%	0	0%	1	11%
Third party testing	0	0%	0	0%	1	11%
Third party testing and information	2	25%	0	0%	0	0%
Third party testing, Resource for information regarding energy efficiency	0	0%	0	0%	1	11%
Trade Association	0	0%	1	100%	0	0%
Use center to test equipment	1	13%	0	0%	0	0%
Use center to test equipment and meet with customers	1	13%	0	0%	0	0%
Total	8	100%	1	100%	9	100%

IF VENTILATION OR REFRIGERATION MANUFACTURER, GO TO QUESTION 30

23. The American Society for Testing and Materials (the ASTM) has test methods that provide accurate, reproducible results providing production efficiency and energy efficiency for different pieces of kitchen equipment (i.e., griddles, ovens, fryers). How aware are you of those methods? Linkage 13

- Not at all aware (GO TO 27)
- Somewhat aware
- Very aware
- DK (GO TO 27)

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
Not aware	6	50%	0	0%	0	0%
Somewhat aware	3	25%	0	0%	0	0%
Very aware	3	25%	0	0%	0	0%
Total	12	100%	0	0%	0	0%

24. How did you hear of these testing methods? Linkage 7,9,12,14

- FSTC Publication Trade Show
 Other Manufacturer Utility ASTM
 Seminars Other: _____

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
ASTM	1	17%	0	0%	0	0%
California Energy Commission	1	17%	0	0%	0	0%
FSTC	1	17%	0	0%	0	0%
Publication	1	17%	0	0%	0	0%
Through engineers in the company	1	17%	0	0%	0	0%
Trade show, ASTM	1	17%	0	0%	0	0%
Total	6	100%	0	0%	0	0%

25. Do your dealers or manufacturer representatives have customers asking about how specific pieces of equipment scored on these tests? Linkage 7,9,12,14

- Yes
 No
 DK

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
No	6	100%	0	0%	0	0%
Total	6	100%	0	0%	0	0%

26. How actively does your company incorporate the ASTM testing methods in your manufacturing process? Linkage 13

- Very
- Somewhat
- Not at all
- DK

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
Very	3	50%	0	0%	0	0%
Not at all	2	33%	0	0%	0	0%
DK	1	17%	0	0%	0	0%
Total	6	100%	0	0%	0	0%

27. Has your company developed in-house efficiency testing methods for the equipment that you manufacture? Behavior

- Yes
- No (GO TO 30)
- DK (GO TO 30)

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
Yes	9	75%	0	0%	0	0%
No, use ASTM methods exclusively	1	8%	0	0%	0	0%
No	2	17%	0	0%	0	0%
Total	12	100%	0	0%	0	0%

28. Which equipment do you use the in-house testing methods on? _____
 Linkage 7,9

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
All	7	78%	0	0%	0	0%
Ranges	1	11%	0	0%	0	0%
Refrigeration, Fryers, Ovens, Dishwashing	1	11%	0	0%	0	0%
Total	9	100%	0	0%	0	0%

29. How actively does your company incorporate those in-house testing methods in your manufacturing process? Linkage 7,9

- Very
- Somewhat
- Not at all
- DK

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
Somewhat	1	11%	0	0%	0	0%
Very	8	89%	0	0%	0	0%
Total	9	100%	0	0%	0	0%

30. When attempting to sell your product, what features do you promote most? (Can choose more than one answer) Behavior

- UL Listing Options available Efficiency
- Looks Reliability Price
- Other: _____

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
Air performance	0	0%	0	0%	1	8%
Application, Reliability, Options available, Efficiency	1	8%	0	0%	0	0%
Ease of use and Cleaning	1	8%	0	0%	0	0%
Ease of use, Reliability, Options available	1	8%	0	0%	0	0%
Efficiency	0	0%	0	0%	1	8%
Efficiency, Construction	1	8%	0	0%	0	0%
Efficiency, Durability, Custom designed features	1	8%	0	0%	0	0%
Efficiency, Energy efficiency	0	0%	0	0%	1	8%
Efficiency, High quality of components, Ease of maintenance	1	8%	0	0%	0	0%
Efficiency, Reliability	1	8%	0	0%	0	0%
Energy efficiency	0	0%	0	0%	1	8%
Energy efficiency, Comfort improvements	0	0%	0	0%	1	8%
Fire safety, Quality, Energy efficiency, Engineering expertise	0	0%	0	0%	1	8%
Flexibility in design	0	0%	0	0%	1	8%

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
labor savings, Energy savings, Safety (worker)	1	8%	0	0%	0	0%
Looks, Options, Reliability	0	0%	1	9%	0	0%
Options available, Efficiency, Electronic controller technology	0	0%	1	9%	0	0%
Options available, Energy efficiency, Quality	0	0%	0	0%	1	8%
Options, Reliability, Efficiency	0	0%	1	9%	0	0%
Patented technology	1	8%	0	0%	0	0%
Price, Energy efficiency, Construction features	0	0%	0	0%	1	8%
Price, Performance, Energy efficiency	0	0%	0	0%	1	8%
Price, Reliability, Options available	1	8%	0	0%	0	0%
Price, Reliability, Workmanship	0	0%	1	9%	0	0%
Price, Space Required	0	0%	1	9%	0	0%
Reliability	0	0%	1	9%	1	8%

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
Reliability, Customer Service After Sale	0	0%	1	9%	0	0%
Reliability, Efficiency	0	0%	2	18%	0	0%
Reliability, Food safety, Energy efficiency	1	8%	0	0%	0	0%
Reliability, Heavy duty construction	0	0%	0	0%	1	8%
Reliability, Long life, Reduced energy consumption, Reduced water consumption	0	0%	1	9%	0	0%
Reliability, Performance	1	8%	0	0%	0	0%
UL Listing, Options, Reliability, Efficiency, Price, NSF Approved	0	0%	1	9%	0	0%
Total	12	100%	11	100%	12	100%

31. What percent of the time does your rep or the dealer or designer that carries your product recommend equipment that saves energy for the customer? Behavior

DK

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
0	0	0%	3	27%	0	0%
10	1	8%	0	0%	0	0%
100	0	0%	1	9%	4	33%

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
20	2	17%	0	0%	0	0%
25	0	0%	0	0%	1	8%
25 - 30	1	8%	0	0%	0	0%
30	0	0%	2	18%	1	8%
40	1	8%	0	0%	0	0%
50	2	17%	0	0%	2	17%
70	0	0%	0	0%	1	8%
75	0	0%	0	0%	2	17%
80	2	17%	1	9%	0	0%
95	0	0%	1	9%	0	0%
DK	3	25%	3	27%	1	8%
Total	12	100%	11	100%	12	100%

32. Over the last few years, has this percentage decreased, increased, or remained about the same? L7,9,12,14

- Decreased
- Increased
- Remained the Same
- DK

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
Decreased	1	8%	0	0%	0	0%
Same	1	8%	3	27%	3	25%
Increased	7	58%	4	36%	8	67%
DK	3	25%	4	36%	1	8%
Total	12	100%	11	100%	12	100%

33. What percent of your customers request equipment that saves energy? L 7,9,12,14

_____ DK

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
0	1	8%	4	36%	0	0%
1	0	0%	1	9%	0	0%
5	1	8%	0	0%	0	0%
10	1	8%	0	0%	3	25%
15	0	0%	1	9%	0	0%
20	1	8%	0	0%	2	17%
30	2	17%	1	9%	1	8%
40	2	17%	0	0%	0	0%
50	1	8%	1	9%	1	8%
70	0	0%	0	0%	2	17%
75	1	8%	0	0%	1	8%
75-80	0	0%	0	0%	1	8%
DK	2	17%	3	27%	1	8%
Total	12	100%	11	100%	12	100%

34. Over the last few years, has this percentage decreased, increased, or remained about the same? L7,9,12,14

- Decreased
- Increased
- Remained the Same
- DK

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
Decreased	1	8%	0	0%	1	8%
Same	1	8%	5	45%	3	25%
Increased	8	67%	2	18%	7	58%
DK	2	17%	4	36%	1	8%
Total	12	100%	11	100%	12	100%

35. What percent of the equipment you manufacturer in a given year would you consider to be energy efficient? Linkage 17

_____ DK

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
0	0	0%	2	18%	1	8%
15	1	8%	2	18%	0	0%
20	0	0%	0	0%	1	8%
30	1	8%	0	0%	1	8%
35	0	0%	1	9%	0	0%
40	0	0%	0	0%	1	8%
50	2	17%	0	0%	1	8%
70	1	8%	1	9%	0	0%
75	0	0%	2	18%	0	0%
75-80	0	0%	0	0%	1	8%
80	1	8%	0	0%	1	8%
100	5	42%	3	27%	5	42%
DK	1	8%	0	0%	0	0%
Total	12	100%	11	100%	12	100%

36. On a scale of 1 to 10, with 1 being very low priority, where do you think your customers rate energy efficiency in their decisions to purchase equipment?

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
1	1	8%	3	27%	1	8%
2	1	8%	0	0%	2	17%
3	4	33%	2	18%	2	17%
4	2	17%	1	9%	0	0%
5	2	17%	2	18%	2	17%
6	1	8%	2	18%	1	8%
7	1	8%	0	0%	2	17%
7 to 8	0	0%	0	0%	1	8%
8	0	0%	0	0%	1	8%
9	0	0%	1	9%	0	0%
Total	12	100%	11	100%	12	100%

37. What are your customer's priorities when purchasing your equipment?

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
Application, Reliability, Productivity improvement	1	8%	0	0%	0	0%
Delivery time	0	0%	0	0%	1	8%
Flexibility, Durability, Quality	0	0%	1	9%	0	0%
Functionality	0	0%	1	9%	0	0%
Payback based on energy savings	0	0%	0	0%	1	8%
Performance	1	8%	0	0%	0	0%
Price	2	17%	2	18%	5	42%
Price, Ability to Deliver, Reputation	0	0%	1	9%	0	0%
Price, Availability, Performance, Energy usage	0	0%	0	0%	1	8%
Price, Durability, Functionality	1	8%	0	0%	0	0%
Price, Energy efficiency, Life cycle cost	0	0%	0	0%	1	8%
Price, Lead time, After sale service	0	0%	1	9%	0	0%
Price, output capacity, aesthetics	0	0%	1	9%	0	0%
Price, Performance	1	8%	0	0%	0	0%
Price, Quality	1	8%	0	0%	0	0%
Price, Reliability	0	0%	2	18%	0	0%
Price, Reliability, Delivery	1	8%	0	0%	0	0%

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
Quality, Energy efficiency, Technology	1	8%	0	0%	0	0%
Reliability, Ease of use	1	8%	0	0%	0	0%
Reliability, Labor savings, Cost savings, Space savings	1	8%	0	0%	0	0%
Reliability, Price, Service	0	0%	0	0%	1	8%
Safety, Price, Energy Efficiency	0	0%	1	9%	0	0%
Service, Delivery, Price, Features	0	0%	0	0%	1	8%
Speed of cooking, Maintenance, Energy consumption	1	8%	0	0%	0	0%
Strength, Reliability	0	0%	0	0%	1	8%
Value, Cost per cubic foot	0	0%	1	9%	0	0%
Total	12	100%	11	100%	12	100%

38. What kinds of changes do you think would be necessary in your market to make energy efficiency a high priority when a customer thinks about buying equipment?
Open Opportunity

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
Ability to objectively evaluate new technology and energy savings	0	0%	0	0%	1	8%
Additional utility support to provide energy efficiency information to customers	1	8%	0	0%	0	0%
Energy price increases, Government incentives	0	0%	1	9%	0	0%
Financial incentives from utilities combined with advances in compressor and refrigeration technology	0	0%	1	9%	0	0%
Government imposed standards	0	0%	1	9%	0	0%
Government incentives or requirements	0	0%	1	9%	0	0%
Higher energy costs	1	8%	0	0%	0	0%
Improved economic return associated with energy efficiency	0	0%	0	0%	1	8%
Incentives or rebates	0	0%	0	0%	1	8%
Increased awareness of energy savings benefits	1	8%	0	0%	0	0%

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
Increased customer education and rebates or other financial incentives	0	0%	0	0%	1	8%
Increased energy costs	0	0%	0	0%	1	8%
Increased energy education	1	8%	0	0%	0	0%
Increased energy information programs	1	8%	0	0%	0	0%
Increased energy prices	1	8%	0	0%	0	0%
Increased energy prices and increased capital availability	0	0%	0	0%	1	8%
Increased information/education for consumers	1	8%	0	0%	0	0%
Increased level of customer education	0	0%	1	9%	0	0%
Increased price of energy	0	0%	0	0%	1	8%
Increased utility incentive programs	0	0%	1	9%	0	0%
Increasing energy prices and information campaigns	0	0%	1	9%	0	0%
Large media campaign to educate customers, Increased energy prices	0	0%	0	0%	1	8%

Response	Cooking		Refrigeration		Ventilation	
	Frequency of Response		Frequency of Response		Frequency of Response	
	N	%	N	%	N	%
More end user input into the purchasing of equipment	0	0%	0	0%	1	8%
More energy information from utilities	0	0%	0	0%	1	8%
More focus on lifecycle cost rather than first cost	1	8%	0	0%	0	0%
More independent testing and comparison of equipment	0	0%	1	9%	0	0%
More information about the benefits of energy efficiency	0	0%	1	9%	0	0%
Price of energy	1	8%	0	0%	0	0%
Rebate/incentive programs	0	0%	1	9%	0	0%
Rebates	1	8%	0	0%	0	0%
Rebates or tax credits	1	8%	0	0%	0	0%
Rising gas prices	1	8%	0	0%	0	0%
Significantly increased energy costs	0	0%	1	9%	0	0%
Stricter codes, specifically strengthening the International Mechanical Code and updating UL test requirements	0	0%	0	0%	1	8%
Utility rebates	0	0%	0	0%	1	8%
Total	12	100%	11	100%	12	100%

That completes this survey. On behalf of the CPUC I thank you for your time.

Finish Time _____

Manufacturer Surveys Final Call Disposition

ID	Disposition Description	Cooking Manufacturer Final Call Disposition	Refrigeration Manufacturer Final Call Disposition	Ventilation Manufacturer Final Call Disposition
1	COMPLETE	12	11	12
2	Schedule Call Back	0	1	1
3	Refuses to do Survey	3	3	3
4	Refuse-Take off list	0	0	0
5	Not in Service	0	0	0
6	Foreign Speaking	0	0	0
7	Eligible Respondent Not Available	0	0	0
8	Call Back Later	4	2	0
9	Answering Machine	12	2	4
10	Fax Machine	0	0	0
11	Pager/Cellular Phone	0	0	0
12	No Answer	0	0	0
13	Busy	0	0	1
14	Did Not Pass Screener	1	0	0
17	Terminate (TQ)	0	0	0
18	Other	0	1	5
19	Caller ID	0	0	0
20	Never Called Point	78	84	54
	Total Survey Points	110	104	80
	Average Survey Length:	14 Minutes	13 Minutes	15 Minutes

Appendix E
Final Multi-Unit Specifier Instrument and Responses

Company Name _____ Phone #: _____

Contact Name _____ Time Start _____

Good (morning/afternoon). My name is _____. The state of California requires evaluation of their energy efficiency programs. We are conducting a survey about how the food service sector looks at energy efficiency. The survey will take approximately 10 to 15 minutes. Your responses will be kept confidential.

Do you have time to talk with me to help with our evaluation?

1. Are you the person who specifies the energy using food service equipment for your company?

- Yes
- No -- Can you tell me who should I talk to? _____
- Refuses (Thank and Terminate)

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
Yes	10	100%	10	100%
Total	10	100%	10	100%

A good portion of the interview questions request quantifiable responses, however I would like you to feel free to expand on you answers as you see appropriate. What we are trying to understand is how the market for energy efficient kitchen equipment works, or doesn't work.

2. What is your title?

- Construction Officer Engineer Manager
- Vice President/Officer Architect
- Purchaser/specifier Other: _____

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
Architect	0	0%	1	10%
Director	5	50%	5	50%
Manager	3	30%	3	30%
VP	2	20%	1	10%
Total	10	100%	10	100%

3. What are your primary responsibilities? _____

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
Architecture & Engineering	1	10%	0	0%
Architecture & Facility Design	0	0%	1	10%
Building Services	0	0%	1	10%
Construction	1	10%	2	20%
Design & Construction	1	10%	0	0%
Equipment Development	1	10%	0	0%
Equipment Purchasing	0	0%	3	30%
Facilities	0	0%	1	10%
Facilities & Energy	1	10%	0	0%
Facility Planning & Construction	1	10%	0	0%
Field Engineering	1	10%	0	0%
Kitchen Design	1	10%	0	0%
Kitchen Design & Equipment	0	0%	1	10%
Maintenance Supervisor	0	0%	1	10%
Restaurant Design	1	10%	0	0%
Store Planning	1	10%	0	0%
Total	10	100%	10	100%

4. Compared to other companies like yours, would you consider yourself to be small, medium or large in terms of revenue?

Small Medium Large

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
Small	1	10%	4	40%
Medium	1	10%	4	40%
Large	8	80%	2	20%
Total	10	100%	10	100%

We are particularly interested in understanding how decisions are made when specifying of specific pieces of equipment. I am going to read a list of statements. Please indicate, on a scale of 1 to 10, whether you agree or disagree. A 1 means you strongly disagree and a 10 means you strongly agree.

5. The most important operational issue for our company is keeping our costs for new equipment under control. Organizational practices corp. strategy

_____ DK

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
1	1	10%	0	0%
2	1	10%	0	0%
4	1	10%	0	0%
6	2	20%	2	20%
7	1	10%	2	20%
8	2	20%	2	20%
9	0	0%	1	10%
10	2	20%	3	30%
Total	10	100%	10	100%

6. Investing extra money in energy efficient equipment would reduce our ability to take advantage of other opportunities to invest in productions or sales efforts.
Organizational practices corp. strategy

_____ DK

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
2	1	8%	3	23%
3	0	0%	1	8%
4	1	8%	2	15%
5	2	17%	2	15%
6	4	33%	0	0%
7	1	8%	0	0%
8	1	8%	2	15%
10	2	17%	3	23%
Total	12	100%	13	100%

7. I don't see any reason to be proactive about energy efficiency in today's economy.
Organizational practices & corp. strategy

_____ DK

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
1	4	40%	4	40%
2	2	20%	5	50%
3	1	10%	1	10%
4	2	20%	0	0%
8	1	10%	0	0%
Total	10	100%	10	100%

8. Determining if an energy efficient piece of equipment would be cost effective requires too many resources. Info & search costs

_____ DK

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
1	1	10%	0	0%
2	0	0%	6	60%
3	2	20%	1	10%
4	2	20%	1	10%
5	2	20%	0	0%
6	1	10%	0	0%
7	1	10%	1	10%
8	1	10%	1	10%
Total	10	100%	10	100%

9. The people who benefit most from energy efficient equipment seldom have influence in the purchase decision. Split Incentives

_____ DK

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
2	1	10%	3	30%
3	2	20%	3	30%
4	1	10%	2	20%
5	1	10%	1	10%
6	0	0%	1	10%
7	3	30%	0	0%
8	1	10%	0	0%
10	1	10%	0	0%
Total	10	100%	10	100%

10. Energy efficient equipment is generally less reliable than standard efficiency equipment. Performance Uncertainty

_____ DK

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
1	4	40%	2	20%
2	1	10%	4	40%
3	1	10%	2	20%
4	1	10%	0	0%
5	2	20%	1	10%
7	1	10%	1	10%
Total	10	100%	10	100%

11. I don't see how we can recover the extra cost of purchasing energy efficient equipment given today's energy costs. Financial Uncertainty

_____ DK

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
1	3	30%	0	0%
2	3	30%	5	50%
3	3	30%	3	30%
4	1	10%	1	10%
5	0	0%	1	10%
Total	10	100%	10	100%

12. It is difficult to find energy efficient equipment. Product availability

_____ DK

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
1	1	10%	2	20%
2	2	20%	1	10%
3	1	10%	1	10%
4	1	10%	1	10%
5	2	20%	4	40%
6	2	20%	0	0%
7	1	10%	0	0%
9	0	0%	1	10%
Total	10	100%	10	100%

Now I have a few general questions.

13. Does your company regularly purchase any energy efficient equipment?
Organizational practices corp. strategy

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
Yes	7	70%	10	100%
No	3	30%	0	0%
Total	10	100%	10	100%

13b. (If yes) What types of equipment? Organizational practices corp. strategy

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
Boilers, Building envelope, HVAC, Lighting	1	14%	0	0%
Dishwashers, Ovens, Refrigeration, Hoods, HVAC	0	0%	1	10%
Enchilada cabinet, Steam kettles, Steam chef, Bay marine, Steam wells	0	0%	1	10%
Fryers, Grills, Refrigeration, Hoods	0	0%	1	10%
Fryers, Refrigeration, Lighting, HVAC	1	14%	0	0%
Hoods, HVAC	1	14%	0	0%
HVAC, Lighting, Gas burners	0	0%	1	10%
HVAC, Lighting, Heat recovery, Window film, Solar screening, Insulation, Hoods	0	0%	1	10%
HVAC, Lighting, Refrigeration	0	0%	1	10%
Refrigeration	1	14%	1	10%

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
Refrigeration, Dishwashers, Hoods, Lighting	0	0%	1	10%
Refrigeration, Grills, Fryers, Coffee Brewers, Lighting	1	14%	0	0%
Refrigeration, Lighting	0	0%	1	10%
Water Heating, Lighting, HVAC	1	14%	0	0%
Water Heating, Lighting, HVAC, Gas cooking	1	14%	0	0%
Water heating, Refrigeration, EMCS, Broilers, Hoods, Lighting	0	0%	1	10%
Total	7	100%	10	100%

14. The Food Service Technology Center operates in San Ramon California. The Center conducts food service research and testing of equipment including cooking, refrigeration, and ventilation equipment. It also conducts a variety of workshops, seminars and conferences on the results of its research and testing. Have you ever heard of the Food Service Technology Center before? Linkage 6

- Yes
- No (GO TO 0)
- DK (GO TO 0)

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
Yes	8	80%	8	80%
No	2	20%	2	20%
Total	10	100%	10	100%

15. Where did you hear about the Center? Open opportunity.

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
From co-worker	1	13%	0	0%
Local utility	0	0%	1	13%
MAECO	1	13%	2	25%
MAECO and Food Service Equipment Reports	0	0%	1	13%
Manufacturer	0	0%	1	13%
MUFES Conference	1	13%	0	0%
Other industry source	2	25%	0	0%
Publication	1	13%	2	25%
Seminar by University of Wisconsin	0	0%	1	13%
Tradeshaw/Conference	1	13%	0	0%
DK	1	13%	0	0%
Total	8	100%	8	100%

16. How many times have you attended a presentation given by the Center? _____
Linkage 6

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
0	2	25%	3	38%
1	1	13%	2	25%
2	0	0%	2	25%
4	1	13%	0	0%
5	1	13%	1	13%
6	2	25%	0	0%
8 to 10	1	13%	0	0%
Total	8	100%	8	100%

17. How many times have you received information from the Center? _____ Linkage 6

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
0	2	25%	4	50%
1	1	13%	2	25%
2	0	0%	1	13%
3	1	13%	0	0%
10	1	13%	1	13%
12	1	13%	0	0%
20	1	13%	0	0%
20+	1	13%	0	0%
Total	8	100%	8	100%

18. Do you have any other connection with the Center? Open opportunity.

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
No	7	88%	8	100%
Yes, On Advisory Board	1	13%	0	0%
Total	8	100%	8	100%

19. The American Society for Testing and Materials (the ASTM) has test methods that provide accurate, reproducible results of production efficiency and energy efficiency for different pieces of kitchen equipment (i.e., griddles, ovens, fryers). How aware are you of those methods? Linkage 13, 20

- Not at all aware (GO TO)
- Somewhat aware
- Very aware
- DK (GO TO)

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
Not aware	2	20%	4	40%
Somewhat aware	2	20%	5	50%
Very aware	6	60%	1	10%
Total	10	100%	10	100%

20. How did you hear of these testing methods? Linkage 6, 7,9,12,13, 14, 20

- FSTC Publication Trade Show
- Manufacturer Utility ASTM
- Other: _____

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
FSTC	1	13%	0	0%
Independent laboratory	1	13%	0	0%
MAECO	1	13%	1	17%
Manufacturer	2	25%	1	17%
Publication	3	38%	4	67%
Total	8	100%	6	100%

21. Do you ever ask about how specific pieces of equipment scored on these tests?

Linkage 6, 7,9,12,14, 20

Yes

No

DK

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
Yes	6	75%	3	50%
No	2	25%	3	50%
Total	8	100%	6	100%

22. When specifying equipment, what features do you pay attention to the most? (Can choose more than one answer) Behavior

Certifications (e.g., UL etc.)

Options available

Efficiency

Looks

Reliability

Price

Other: _____

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
Construction, Controls, Performance	1	10%	0	0%
Durability, Efficiency, Price	1	10%	0	0%
Ease of Use	1	10%	0	0%
Ease of Use, Maintenance, Efficiency	0	0%	1	10%
Efficiency, Price	1	10%	1	10%
Efficiency, Price, Installation details, maintenance	0	0%	1	10%
Equipment life, Maintenance costs, Price	0	0%	1	10%
Functionality, Reliability, Efficiency	1	10%	0	0%

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
Manufacturer, Reliability, Service quality, Quality of construction, Performance	0	0%	1	10%
Operational capacity	1	10%	0	0%
Performance, Ease of Use, Reliability, Efficiency, Price	1	10%	0	0%
Performance, Life cycle cost	1	10%	0	0%
Productivity, Ease if Use, Efficiency	0	0%	1	10%
Quality of construction, Size, Recovery time, Equipment life	0	0%	1	10%
Quality, Price	1	10%	0	0%
Reliability, Efficiency	0	0%	1	10%
Reliability, Recovery time	1	10%	0	0%
Reliability, Safety	0	0%	1	10%
Serviceability, Manufacturer, Cleanability	0	0%	1	10%
Total	10	100%	10	100%

23. What percent of the time does your rep or the dealer or the manufacturer who carries the product you are specifying recommend equipment which saves you energy?
Behavior

□ DK

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
0	0	0%	1	10%
5	0	0%	1	10%
10	0	0%	1	10%
10 to 15	1	10%	0	0%

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
20	2	20%	1	10%
25	1	10%	0	0%
30	2	20%	0	0%
35	0	0%	1	10%
<50	0	0%	1	10%
50	1	10%	2	20%
60	1	10%	0	0%
65	0	0%	1	10%
DK	2	20%	0	0%
N/A	0	0%	1	10%
Total	10	100%	10	100%

24. Over the last few years, has this percentage decreased, increased, or remained about the same? Linkage 7,9,12,14, 20

- Decreased
- Increased
- Remained the Same
- DK

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
Same	4	40%	6	60%
Increased	5	50%	3	30%
N/A	0	0%	1	10%
DK	1	10%	0	0%
Total	10	100%	10	100%

25. What percent of time do you specify equipment that saves energy? L 7,9,12,14, 20

DK

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
10	1	10%	0	0%
20	2	20%	0	0%
25	0	0%	1	10%
25 to 30	0	0%	1	10%
30	1	10%	2	20%
40	1	10%	0	0%
40 to 50	0	0%	1	10%
50	2	20%	0	0%
<50	1	10%	0	0%
60 to 70	1	10%	1	10%
65 to 70	0	0%	1	10%
75	0	0%	2	20%
75 to 80	1	10%	0	0%
100	0	0%	1	10%
Total	10	100%	10	100%

26. Over the last few years, has this percentage decreased, increased, or remained about the same? L7,9,12,14, 20

Decreased

Increased

Remained the Same

DK

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
Increased	8	80%	7	70%
Same	2	20%	3	30%
Total	10	100%	10	100%

27. On a scale of 1 to 10, with 1 being very low priority, where do you put energy efficiency in your decision when you specify equipment? Behavior

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
3	0	0%	1	10%
3 to 4	0	0%	1	10%
5	6	60%	0	0%
6	2	20%	3	30%
6 to 7	0	0%	1	10%
7	0	0%	2	20%
8	1	10%	1	10%
8 to 9	1	10%	0	0%
9	0	0%	1	10%
Total	10	100%	10	100%

28. What are your priorities when specifying equipment? Behavior

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
Construction, Energy efficiency, Performance	1	10%	0	0%
Durability, Efficiency, Price	1	10%	0	0%
Durability, Warranty, Price	1	10%	0	0%
Ease of Use, Ability to cook properly	1	10%	0	0%
Ease of Use, Cleanability, maintainability, Energy Efficiency	0	0%	1	10%
Function, Ergonomics, Energy efficiency	0	0%	1	10%
Functionality, Reliability, Energy efficiency	1	10%	0	0%

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
Manufacturer, Reliability, Service Quality, Construction Quality, Performance	0	0%	1	10%
Operational capacity, Reliability	1	10%	0	0%
Performance, Life cycle cost, Ease of Use, Maintenance	1	10%	0	0%
Performance, Reliability, Price, Ease of Use, Efficiency	1	10%	0	0%
Price, Energy efficiency	0	0%	1	10%
Price, Reliability, Ease of Use, Maintenance, Energy efficiency	0	0%	1	10%
Productivity, Ease of Use	0	0%	1	10%
Quality of Construction, Size, Recovery time, Equipment Life	0	0%	1	10%
Quality, Price	1	10%	0	0%
Reliability, Production, Capacity	1	10%	0	0%
Reliability, Quality & construction, Efficiency	0	0%	1	10%
Reliability, Serviceability, Price	0	0%	1	10%
Suitability to process, Price	0	0%	1	10%
Total	10	100%	10	100%

29. What kinds of changes do you think would be necessary in your market to make energy efficiency a high priority when you think about buying equipment? Open Opportunity

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
Decreased capital cost of energy efficient equipment	1	10%	0	0%
Higher demand from end-users for energy efficient equipment. This will drive the manufacturers to provide it.	1	10%	0	0%
Improved reliability of energy efficient equipment	0	0%	1	10%
Improved return on investment	0	0%	1	10%
Increased availability of energy efficiency information	0	0%	1	10%
Increased availability of energy efficient equipment from manufacturers and increased third party testing of equipment with published results	1	10%	0	0%
Increased availability of third party test data and standardization of energy rating system	1	10%	0	0%
Increased cost of energy	1	10%	0	0%
Increased durability and quality of energy efficient equipment	1	10%	0	0%
Increased energy costs	0	0%	3	30%

Response	Participants		Nonparticipants	
	Frequency of Response		Frequency of Response	
	N	%	N	%
Increased energy costs, Increased availability of energy efficient equipment	0	0%	1	10%
Increased information/marketing from manufacturers on energy efficiency	1	10%	0	0%
Increased participation from utilities working with manufacturers	0	0%	1	10%
Increased utility cost and Availability of more efficient equipment from manufacturers	1	10%	0	0%
More promotion by manufacturers	0	0%	1	10%
Reduced cost of energy efficiency equipment	1	10%	0	0%
Standardized rating system for energy efficiency	0	0%	1	10%
DK	1	10%	0	0%
Total	10	100%	10	100%

That completes this survey. On behalf of the California Public Utilities Commission I thank you for your time.

Finish Time _____

Multi-Unit Specifier Survey Final Call Disposition

ID	Disposition Description	Participant Final Call Disposition	Nonparticipant Final Call Disposition
1	COMPLETE	10	10
2	Schedule Call Back	0	1
3	Refuses to do Survey	0	3
4	Refuse-Take off list	0	0
5	Not in Service	0	0
6	Foreign Speaking	0	0
7	Eligible Respondent Not Available	0	0
8	Call Back Later	1	11
9	Answering Machine	4	18
10	Fax Machine	0	0
11	Pager/Cellular Phone	0	0
12	No Answer	0	0
13	Busy	0	0
14	Did Not Pass Screener	0	0
17	Terminate (TQ)	0	0
18	Other	1	24
19	Caller ID	0	0
20	Never Called Point	6	29
	Total Survey Points	22	96
	Average Survey Length:	10 Minutes	12 Minutes

Appendix F
Final Hard-to-Reach Instrument and Responses

***Food Service Technology Center
Hard-to-Reach In-Depth Interview
Fisher-Nickel Employee***

This interview guide is designed to gather information from the person at the Food Service Technology Center (FSTC) responsible for performing the outreach to cooperatives that target the hard-to-reach (HTR) foodservice sector.

The purpose of the interviews is to document the FSTC efforts to reach this population for the CPUC.

FSTC Role PI Linkages 7, 8, and 9

1. Please explain to me your role in performing outreach to the HTR market.
Responsible for implementing the third party implementers. It is difficult for the FSTC to reach the hard to reach customers [without going through an organization that already has contact with them]. Often the HTR agencies come to us. We went after the city and county agencies.

2. What percent of your time do you spend on this effort?
70%

3. How many full time equivalent FSTC people are working on this effort?
Only me.

4. Why did the FSTC choose to use cooperatives as an avenue for their outreach?
They are small and looking for help. They work, they fit the mold once we got the HTR targets [for the current program]. Prior to the HTR targets, these organizations were part of our site survey program.

Process with Cooperative PI Linkages 7, 8, and 9

5. How did you work with the cooperatives?
Helped them write their check list for green business early on. We only did EE in the kitchens before (lights etc.).

6. What were your greatest challenges in working with the cooperatives? (Note: this is not the work of auditing the HTR food service sites, but working with the cooperatives themselves.) How were those challenges met?
Developing a schedule and sticking to it, because they are often using volunteers. Record keeping is sometimes weak also.

7. What were your greatest rewards from working with the cooperatives?
When they continue to keep the FSTC involved in their program and continue to introduce us. Also it is exciting to see the customers see the value of the our recommendations.

8. What would you do differently if you were to work with a cooperative type of organization again?
Relatively pleased with the way it works. They often need hand holding to get them to do the work. A program that supplies hand holding beyond the survey would be an improvement.

Process with HTR Customer PI Linkages 7, 8, and 9

9. Please explain what your interactions were with the HTR customers were.
Meet the manager of the key decision maker, explore the process, ask for a tour. Sometimes they come with us [on the tour]. Meet with the decision maker again at the end. Use a check list to point out issues to decision maker. Half way through program we were supposed to start giving estimates of kW reductions. Try to go back in some cases and do deliver the report. In some cases we send to the Coops. Prefer a sit down with the decision maker. The dollar savings really open their eyes.

10. How did the cooperative facilitate your interactions with the HRT customers
Depends. Sometimes they come along on visit. Sometimes we are just supplied a contact name. The Coop sets it up so people know that we are coming. When language is an issue, they interpret. Non technical interpreters can be an issue.

11. What were your greatest challenges in working with the HTR customer? How were those challenges met?
Their lack of funding to allow implementation of recommendations. The program hasn't been going long enough to see how we can really get them to implement. Repeat visits help keep us in their minds.

12. What were your greatest rewards from working with the HTR customers?
When the customers are either already doing things or they are very receptive. Usually most receptive to low/no cost measures. Hopefully they will call when making big capital choices. A couple have called back.

13. What would you do differently if you were to work with customer such as this again?
Skipped.

14. What techniques did you find worked very well with the HTR customers?
Calling and scheduling a meeting. Meetings get more results than phone calls. You can check on what they have done at the same time.

15. What were the biggest challenges that you found the HTR customers had?
Time is always an issue, they are very busy people. Lack of funds to carry out recommendations also a major issue. The language barrier can be an issue. Also, often they don't own the property so they are unwilling to invest in improvements.

16. What else could either the FSTC program or a different type of program offer the HTR customer that would help them meet those challenges?
Spending more time with the customers, holding their hand more along the process of assessing which measures to do and how to get them done. They are unwilling to or nervous about signing things that they don't completely understand the language of. We could supply them the [rebate] forms if we had multiple visits.

Visits currently take about 2.5 to 3.0 hours on average, or about 4 hours with travel time. [Interviewer suggestion: Carry forms with you and hand them out on primary visit. Possibly extend total time on single visit in order to help with forms/explain measures further as cost effective way to encourage implementation.]

Now I am going to change formats. I will ask you a series of questions that

Changes in Perceptions of Coops and HTR Customers PI Linkage 8

17. How would you rate the awareness of the Coop personnel about energy efficiency prior to their involvement with the FSTC?

Very Aware Aware **Not very Aware** Not At all Aware?

18. After their involvement with the FSTC,

Very Aware **Aware** Not very Aware Not At all Aware?

19. How would your rate their attitude toward energy efficiency before their involvement with the FSTC?

Very Positive **Positive** Not very Positive Not At all Positive

20. After their involvement with the FSTC?

Very Positive Positive Not very Positive Not At all Positive

21. How would you rate their knowledge about energy efficiency before their involvement with the FSTC?

Very knowledgeable Knowledgeable **Not very knowledgeable**
Not At all knowledgeable

22. After their involvement with the FSTC?

Very knowledgeable **Knowledgeable** Not very knowledgeable
Not At all knowledgeable

Now I want to ask some of the same questions about the your opinions or the same issue for the Hard-to-Reach Customers themselves.

23. How would you rate the awareness of the of the average Hard-to-reach participant about energy efficiency prior to their involvement with the FSTC?

Very Aware Aware **Not very Aware** Not At all Aware?

24. After their involvement with the FSTC,

Very Aware **Aware** Not very Aware Not At all Aware?

25. How would you rate their attitude toward energy efficiency before their involvement with the FSTC?

Very Positive **Positive** **Not very Positive [Neutral]** Not At all Positive

26. After their involvement with the FSTC?

Very Positive **Positive[for the bill payer]** Not very Positive Not At all Positive

27. How would you rate their knowledge about energy efficiency before their involvement with the FSTC?

Very knowledgeable Knowledgeable **Not very knowledgeable**
Not At all knowledgeable

28. After their involvement with the FSTC?

Very knowledgeable **Knowledgeable** Not very knowledgeable
Not At all knowledgeable

Are there any other comments that you would like to make about the FSTC program or methods for reaching or the hard to reach market?

I don't want this taken wrong, and I don't want to abandon the HTR, but if it is large kWh savings that are being sought, they won't find it through the HTR program. On the other side, these customers really appreciate the help.

Thanks for your help.

***Food Service Technology Center
Hard-to-Reach In-Depth Interview
Cooperatives***

This interview guide is designed to gather information from three different cooperatives that the Food Service Technology Center (FSTC) worked with during their hard-to-reach (HTR) outreach.

The purpose of the interviews is to document the FSTC efforts to reach this population for the CPUC.

Cooperative Process PI Linkages 7, 8, and 9

1. Please explain to me your responsibilities within the cooperative.

Currently I am the Northern CA director for the Center for Small Business and the Environment working on a program for Energy Star in Food Service. At the time that I did most of the work with the FSTC I worked for City of San Francisco. That effort supplied stipends to get people to the FSTC seminars.

We run a Greening Ethnic Restaurants Program which implements green technology including energy assessments. In am the executive director.

Program officer – ran programs working with businesses to reduce PG&E costs and implement EE measures.

2. What percentage of your time did you spend helping the FSTC reach these customers?

5-7%

30%

7%

3. How many full time equivalent people worked on the program in your organization?

No others, just me.

No one else worked on this program. I was only half time.

Occasionally an intern for translations, other than that no others.

4. How did you work with the FSTC?

One of the volunteers will set up a meeting. The FSTC have been going out with us to ethnic restaurants, and they do assessments of energy consumption and supply report. We also Smart Lights in the Berkeley and Oakland areas to implement the recommendations.

Initial contact was when Ann Kelly, who worked for the City of San Francisco informed us that the FSTC existed. Started with lighting retrofits. Contacted Charles and they went into a particular restaurant to assess savings. That led to more.

Initially I contacted them to find out what program they ran. Accompanied FSTC on site surveys. Scheduled the restaurants we went to. Would have followed up. But we didn't get to that point.

5. What were your greatest challenges in working with the FSTC? How were those challenges met?

Only challenge is that there should be more of them (FSTC personnel). Could use more people to meet the need. We met the challenge by scheduling the audits.

No challenges at all. The FSTC was fantastic, responsive.

At first there was some training to teach them not speak in jargon (i.e., T12 to T8 means nothing to most customers). But that just took a bit of training. I wish they would do implementation. Private contractors rates are much higher than Smart Lights. We overcame the implementation issue by teaming with other programs. The FSTC is getting to be known as the premiere food service EE provider.

6. What were your greatest rewards with working with the FSTC?

Reports give the restaurant a tangible thing to work with. Numbers are vital for restaurants and for funders. Another reward is that the restaurants have some unbiased source for where to go if something breaks down.

Learned a lot. Taught me a lot about the details of EE. Charles [Bohlig] was very patient.

The FSTC brings a lot of integrity to the process of efficiency that helps give it credibility. A lot of charlatans out there, which leads to reluctance on the part of the food service establishments. Their authorship of protocols and independence lends creditability. When they were with PG&E that also was OK. PG&E added credibility also. Independence is the key to their credibility.

7. What did you feel the FSTC brought to your customers that they could not get elsewhere?

No one else does what they do, not only regionally but nationwide. The fact that their sole purpose for existing is energy efficiency in Food Service.

More in depth knowledge. Every one was aware of the need, but it demystified what the measures were and how to implement them. Saved them time in researching, and time is always an issue for these people.

Unbiased advice. Outside of Berkeley and Oakland (where Smart Lights also provides the same service for lighting) they are the only source.

Process with HTR Customer PI Linkages 7, 8, and 9

8. Please explain what your interactions are with your customers.

We try to do everything from recruiting to certifying their building as green. Our recruiting rate is 95%. Then we get partnerships to make it all happen. We now have 24 certified green restaurants due to our effort.

I am in the field of developing programs to get food service organizations to invest in EE. In essence it is providing information to get them to invest. Low flow rinse nozzles were a real home run in terms of getting customers attention.

Call and let them know services were available. Scheduled the visit, went along on survey. Help with funding if they were implementing. Helped implement, where possible/applicable.

9. What are your greatest challenges in working with your customers? How do you meet those challenges?

In food service, energy doesn't pop up as a controllable commodity is difficult. We meet that challenge by going to the easiest job first, then work up.

Language was a significant barrier. 20% are recent immigrants. Cost was always an issue. Getting over the hump to believe that participation could save them money. We explained that it would cost them nothing to try low cost measures.

Languages and trust. The customers often have a mistrust of the government. I have 90 seconds to establish trust. How do you establish trust? Speaking their language, be honest, don't promise what cannot be delivered. Analysis, reporting, and partnerships all help.

10. What are your greatest rewards with working with the customers?

Seeing the customers understand and realize a sense of relief that they could find help.

The greatest reward is when we see the customer move into a collaboration mode. Once you overcome the initial reticence and they move into collaboration. Richard and Charles move them. It is a package. It is where they are coming from. They are a source that is not biased. That is a key issue. Then going through different parts of EE in food service in a simple visual fashion to get them on board.

To deliver them the best environmental outreach that we can deliver. Saving the environment. To be their friend. Ethnic restaurant tend to be more environmentally friendly than American.

11. What are the biggest challenges you think your customers have?

Trusting the people who come in. If I bring a white male, they often hesitate. When they have to change behavior then they have to learn. This is hard for them.

Don't trust the utility at all. Always fearful of next month's bill rising. Small capital expenditure were a big thing for most of them.

Justifying the investment. To invest in efficiency, financing is huge. Cash flow is key to restaurants. It is a big issue in terms of getting serious with efficiency. Give away offers often make them think "why make and investment". But if we can get them started, and make them understand, then they can move further.

12. What else could either the FSTC program or a different type of program offer your customer that would help them meet those challenges?

Need more of them (FSTC personnel). Need to be able to hit more areas in more depth. This would start change the basic way operations work. Critical mass is the key.

Implementation in addition to the audits. The should include outreach programs like ours in their program. It needs to be part of an overall plan. It doesn't appear to be planned at the FSTC level.

More written information at the time of the site survey. Maybe a list of 10 easy ways to save money/conserves energy now. Most had computers. Web based [report delivery] format would have been helpful. Time was always important to these customers.

Changes in Perceptions of Coops and HTR Customers PI Linkage 8

13. On a scale of 1 to 10, with 1 being very low and 10 being very high, how would you rate the awareness of the Coop personnel about energy efficiency prior to their involvement with the FSTC?

0-1 In this case it is the staff in the environmental department of the City of SF.

7 for the owners, staff was lower at about 4.

1-2

14. After their involvement with the FSTC?

4-5

8 for staff after involvement.

3-4 It's a process. They need to build knowledge.

15. On the same scale, how would you rate their attitude toward energy efficiency before their involvement with the FSTC?

9-10 That is an energy efficiency department so their attitude is high going in.

10

2

16. After their involvement with the FSTC?

7

10, involvement simply made me more fluent in the details.

9-10

Now I am going to change formats. I will ask you a series of questions that

Changes in Perceptions of Hard-to-Reach Customers PI Linkage 8

17. How would you rate the awareness of the of the average Hard-to-reach participant about energy efficiency prior to their involvement with the FSTC?

Very Aware Aware Not very Aware Not At all Aware?

Very Aware Aware Not very Aware Not At all Aware?

Very Aware Aware Not very Aware Not At all Aware?

18. After their involvement with the FSTC,

Very Aware Aware Not very Aware Not At all Aware?

Very Aware Aware Not very Aware Not At all Aware?

Very Aware Aware Not very Aware Not At all Aware?

19. How would your rate their attitude toward energy efficiency before their involvement with the FSTC?

Very Positive Positive **Not very Positive** Not At all Positive

Very Positive **Positive** **Not very Positive** Not At all Positive
Ambivalent

Very Positive Positive **Not very Positive** Not At all Positive

20. After their involvement with the FSTC?

Very Positive **Positive** Not very Positive Not At all Positive

Very Positive Positive Not very Positive Not At all Positive

Very Positive **Positive** Not very Positive Not At all Positive

21. How would you rate their knowledge about energy efficiency before their involvement with the FSTC?

Very Knowledgeable **Not very** Not At all

Very Knowledgeable **Not very** Not At all

Very Knowledgeable **Not very** Not At all

22. After their involvement with the FSTC?

Very **Knowledgeable** Not very Not At all

Very Knowledgeable Not very Not At all
They at least begin to pick up the knowledge about what to ask.

Very **Knowledgeable** Not very Not At all

Are there any other comments that you would like to make about the FSTC program or methods for reaching or the hard to reach market?

Right now the FSTC has the theoretical knowledge and they are really good at the first step. They should leverage the information to make that knowledgeable available for entire cities. Would like to see them have partnerships with contractors to help the customers implement. They need to offer more than just rebates.

No, I think we covered it all.

Run a great program. If anything, and this is a compliment, they are overworked and understaffed. I was always aware that their schedule was booked. Sometimes the reports were a little slow in coming.

Thanks for your help.

Appendix G

Methodological Details

This appendix describes the data cleaning and preparation that was done on the survey responses collected from participant and nonparticipant end users before any statistical analysis could be done on these datasets.

The data cleaning consisted of reading the raw data files into SAS, renaming some variables to make them consistent from 1999 to 2003 and participant to end user, and to conduct logic checks to determine if any interviewing or data entry errors resulting from complicated skip patterns or inconsistent variable definitions (i.e., character versus numeric) across both the participant and end user surveys. It also involved categorizing the open-ended question. In 1999 survey respondents were required to always give a number when asked how frequently something occurred (for example “How often have you asked your dealer about cooking equipment which saves energy?”). In 2003 however, many respondents answered these types of questions with responses such as “All the time”, “A few times” or “Never”. As a result it was necessary to categorize these open-ended questions for the 2003 surveys. In order to make equitable comparisons between the 1999 and 2003 surveys the 1999 surveys were also categorized in the same manner. A mean value was then assigned to each categorical group so comparisons could be made on a weighted numeric level when necessary.

These questions were categorized as follows:

Category	Number of times	Assigned Mean Value
Never	0	0
Rarely	1 to 3	2
Sometimes	4 to 7	5.5
Frequently	8 or more	10

One additional change that occurred in the data preparation process between 1999 and 2003 involved the handling of missing data. In 1999 missing data points were backfilled using data from other cases with a similar response pattern over a series of questions. In 2003 this technique was not necessary since missing data did not occur. Some respondents gave “Don’t Know” as their answer to various questions but this was not treated as missing.

In 2003 two preliminary completes were removed from the analysis dataset since neither of these respondents had completed enough of the survey to be useful data points for the analysis. This dropped the nonparticipant end user achieved sample down to 76 from the initial 78 respondents.

In 1999 an exploratory factor analysis was conducted to ensure that questions designed to measure attitudes towards energy conservation and the five market barriers loaded on the

same factor and therefore could be combined to form a scale. The results of this analysis confirmed the original survey design and thus the scales were used for analysis of the attitudes and market barriers. The 1999 survey instrument was again used in 2003 and thus it can be assumed that the results of the original factor analysis are still valid making it unnecessary to re-conduct this analysis. Using the same scales in 1999 and 2003 was important for it allowed for a consistent comparison between the two surveys years.

Appendix H
Listing of ASTM Test Methods

N	First Year Ratified	Current ASTM Ratification Year	ASTM Number	ASTM Name of Test Method
1	1995	1999	F1275-99	Standard Test Method for Performance of Griddles
2	1995	1999	F1361-99	Standard Test Method for Performance of Open Deep Fat Fryers
3	1993	1999	F1484-99	Standard Test Method for Performance of Steam Cookers
4	1993	1999	F1496-99	Standard Test Method for Performance of Convection Ovens
5	1996	2003	F1521-03	Standard Test Methods for Performance of Range Tops
6	NA	1995	F1605-95	Standard Test Method for Performance of Double-Sided Griddles
7	NA	1995	F1639-95	Standard Test Method for Performance of Combination Ovens
8	NA	1996	F1695-96	Standard Test Method for Performance of Underfired Broilers
9	NA	1996	F1696-96	Standard Test Method for Energy Performance of Single-Rack Hot Water Sanitizing, Door Type Commercial Dishwashing Machines
10	1996	1999	F1704-99	Standard Test Method for Performance of Commercial Kitchen Ventilation Systems
11	NA	1997	F1784-97	Standard Test Method for Performance of a Pasta Cooker
12	NA	1997	F1785-97	Standard Test Method for Performance of Steam Kettles
13	NA	1997	F1786-97	Standard Test Method for Performance of Braising Pans
14	1998	1998	F1787-98	Standard Test Method for Performance of Rotisserie Ovens

N	First Year Ratified	Current ASTM Ratification Year	ASTM Number	ASTM Name of Test Method
15	NA	1997	F1817-97	Standard Test Method for The Performance of Conveyor Ovens
16	NA	1999	F1964-99	Standard Test Method for Performance of Pressure and Kettle Fryers
17	NA	1999	F1965-99	Standard Test Method for Performance of Deck Ovens
18	NA	1999	F1991-99	Standard Test Method for Performance of Chinese (Wok) Ranges
19	NA	2001	F2093-01	Standard Test Method for Performance of Rack Ovens
20	NA	2001	F2140-01	Standard Test Method for Performance of Hot Food Holding Cabinets
21	NA	2001	F2141-01	Standard Test Method for Performance of Hot Deli Cases
22	NA	2001	F2142-01	Standard Test Method for Performance of Drawer Warmers
23	NA	2001	F2143-01	Standard Test Method for Performance of Refrigerated Buffet and Preparation Tables
24	NA	2001	F2144-01	Standard Test Method for Performance of Large Open Vat Fryers
25	NA	2003	F2237-03	Standard Test Method for Performance of Upright Overfired Broilers
26	NA	2003	F2238-03	Standard Test Method for Performance of Rapid Cook Ovens
27	NA	2003	F2239-03	Standard Test Method for Performance of Conveyor Broilers

Appendix I
Focus Group Notes

Slide 1

FSTC FOCUS GROUP

TOP-LINE SUMMARY

EQUIPOISE CONSULTING AND

R J RESEARCH

NOVEMBER, 2003

RJR 03-628

Slide 2

METHODOLOGY

Approach:	Focus group
Sample Size/ Participants:	9 FSTC advisors
Market:	San Ramon Food Service Technology Center
Timing:	Session conducted on November 6, 2003

1

Slide 3

Most advisors disagree that there has been a nominal impact among non-participating end-users regarding the FSTC program.

- Many of the advisors believe that non-participants who purchase energy efficient equipment were probably impacted by FSTC efforts at least in an indirect manner.
 - Most agree that even unawareness of the FSTC is not necessarily an indicator of the Centers impact in the marketplace.
 - Some contend that the lack of familiarity or awareness of some of the acronyms (ASTM, FSTC, etc.) is not an indicator of ineffectiveness.
- Some of the advisors believe that a considerable number of end-users prioritize energy efficiency well below cost and performance criteria.
 - A few believe that split incentives continue to be a barrier.

2

Slide 4

Most advisors believe that many of the non-participant end-users have been in one way or another impacted by the efforts of the FSTC.

...*"I'd like to challenge the question...So we're asking why there has been no impact on people they have not been in touch with at all. You would expect to have no impact, but the truth of the matter is there has been an enormous impact. Anybody who is buying equipment and finds an Energy Star marking on it even though they never even heard of San Ramon or Don Fischer is being influenced by this thing. They're (labeled as) non-participants, they don't even know they're being influenced by it. I think there has been a tremendous secondary impact on non-participants."*...

...*"We put together a program to help off-set the cost of buying more energy efficient appliances for the foodservices. The foundation for the program was work developed by the Center (FSTC). Customers may not know anything about anything about anything but they are now buying more energy efficient appliances because there is a program that off-sets some of the costs and that body of work, the technical portion, was done here. They (non-participants) are being influenced."*...

...*"A few years ago I'd be talking to manufactures and they would say 'The only thing our customers care about is lowest cost out the door. They don't care if it uses 20 times more energy.' That has taken a 180 degree turn. Now they are recognizing that it isn't just the first dollar that they put out but it is fewer dollars out of their pocket down the road that matters."*...

...*"It's unfair to say there isn't an impact. It's fair to say that they don't recognize that there is an impact or they are not aware of an impact...(They may be) unaware of the work that they are (FSTC) doing. They may have been impacted by it through regulatory issues, through rebates that utilities put out there."*...

3

Slide 5

Several advisors identified some areas for the lack of penetration among non-participants –lower priority of energy efficiency vs. other criteria, split incentives, confusion over nomenclature.

...“When we think of what a person operating a restaurant wants for their equipment, energy efficiency isn’t the top line. It comes probably third place, fourth place...maybe not even in the top five. ‘It has to cook my food to my quality standards. It has to work on Friday nights, whenever my busy time is. It better be working. And the perception of the operating cost comes into play.’ And so the insurance needs to go to the restaurateur that you are a reliable company with a reliable piece of equipment and it is going to cook the food properly. Then you start thinking about the cost (and energy efficiency) .”...

...“I think there is a separation in the foodservice industry between the person who decides what equipment to purchase and the person who is paying the bills. For example, if chefs get to pick their own equipment and they are not the owner, they probably have no sensitivity to energy use of the appliance or some of these quantitative measures of performance. They are looking for ‘How does it cook, simple controls.’ They are looking for functionality, user friendly, intuitiveness. They are not paying the bills, so energy is not even in their question.”...

...“if you’re asking a question of somebody and you are asking them to know the lingo and they are a cook or a chef or a restaurant owner, they are not going to know the lingo, but they might know (about energy efficiency appliances)”

4

Slide 6

Numerous suggestions were offered by advisors to reduce barriers for non-participating end-users.

- Some believe that the Center should focus on selling energy efficiency and not on building its own name recognition and to identify its many accomplishments. Survey may have asked wrong question by asking whether people recognized FSTC.
- Others believe that their target audience should be operators and not engineers.
- A few contend that more proactive approaches should be utilized with non-participants, (e.g., direct calling, doing regional and national symposiums) and that they should go to key market actors.
- A few think that monetary incentives may entice some of the non-participants.

5

Slide 7

Advisors provided a variety of suggestions to reach the non-participant end user segment.

...*"The FSTC does tech transfer very well but they don't get up there and say 'We're FSTC'. What they're getting out is the energy saving message. People that go to these seminars may not identify that FSTC is the source. To make the survey look good, they have to toot their own horn more, but I am not sure that is the purpose. The purpose is to get the people to save energy and if that is the message and people are getting the message, they don't need to know where the information came from."*...

...*"The center is focused on being engineers talking to other engineers, but in the foodservice arena, it sure is not the engineers that are making the purchasing decisions. It is the operations people who ultimately decide what equipment is purchased."*...

...*"Most of the out-reach is in a seminar context at national meetings or regional meetings or their own seminars. Have they ever picked up the phone, having met somebody at a chain, and say 'We would like to call on you and tell you about what we are doing.' Or 'We would like to invite you to come out and see our place and show you what we have been doing.' It is an assertive or an active contact versus a passive contact."*...

...*"Direct sales always helps."*...

...*"The incentives they mentioned would seem to work. We'll pay you \$50 and we will show you how to save \$500 or whatever."*...

...*"I don't know what they could do any more than to be in groups (like) MAECO and NAFEM and MUFES to interact with end-users and manufacturers. That is the single biggest thing they could do to increase their exposure."*...

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Slide 8

Most agree that the FSTC website, as currently configured (including recent modifications) would not be a strong vehicle to reach the non-participant end user.

- Some believe the website is too passive an approach, especially versus the direct sales call option.
- Many believe the verbiage that is used on the website is too technical for end-users.
- Reports on website should have summaries or abstracts that make the information more available.
- Include a Frequently Asked Questions page.

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Slide 9

Most advisors believe the website, as currently structured, does not appear to be a viable option to capture non-participant end users.

...“It’s an option, but somebody has to go to it. How do they know that a website exists?”...

...“Prior to the new one (FSTC website), it was not particularly end user friendly. It is much more friendly to people who know the words.”...

...“It is not so much layout or clickability or whatever, it is the jargon. It is the vocabulary. It is teaching them kindergarten before you give them a high school class.”...

...“It would be very nice if their report would have a summary, a three line summary telling you the bottom line. That is a lot of work, because they have a lot of reports. I mean you condense that entire report into three lines..”

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Slide 10

Many of the advisors felt that they unclear regarding the exact definitions of product availability and split incentives as manufacturer barriers, but discussion pointed out that they did understand the concept.

- Most of the advisors agreed that the energy crisis over the last several years, especially in California, has increased awareness, knowledge and receptivity to energy efficient options and, as a result, this has brought forth a greater willingness to compromise.
- Some advisors felt that Product Availability is less of a problem because there are more tests and more pieces of energy efficient equipment on the market.

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Slide 11

Although quite a few advisors were unsure of the definitions of product availability and split incentives, most believe that the recent energy crises may explain why fewer manufacturers currently perceive these as barriers.

...*"We had it (product availability) explained to us, what it meant, and most of us, I think, still don't understand it and I doubt whether the people who answered the questions understood it either."...*

...*"One reason is because it is now entered into the Energy Star. It is entered into California codes. Now they are recognizing to settle in California they have to use the ASTM test method. To get Energy Star and to compete with their peers, they have got to use the ASTM method. So the ante has been raised in this energy game both by code and marketing pressure to test the appliances."...*

...*"The brown-outs, the electrical shortages made people much more aware of asking for energy efficient appliances."...*

...*"From '99 to 2003 we have a major energy crisis in California and it's almost politically correct to tell your customer that now my appliances use X amount of energy or less than somebody else. We have very attractive utility incentives so the manufacturers see that they can sell more of their stuff by giving the energy angle a chance because the incentives are so high in 2003. All this pushed them to say 'Yeah, let's put forward the energy piece.'..."*

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Slide 12

Continued

...*"Energy efficiency has become more important. Now perhaps due to the energy crisis, perhaps due to Energy Star, advertisement, acquired knowledge, energy has become part of the decision of purchasing that widget. Therefore, the manufacturer has perceived that being energy efficient is no biggie. It is part of the process of selling something."...*

...*"The manufacturer has a wider range of products now so that he can provide both the energy efficient product and the cheap model so that now he doesn't see it as a barrier because he's got this whole variety to respond better to what the purchaser wants."...*

...*"With corporate downsizing, where you might have had Operations, Purchasing, Engineering and all these different entities that you had to talk to, now it is all the same person."...*

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Slide 13

A few reasons were provided why many manufacturers continue not to use ASTM test methods – lack of ownership during development stage, too costly to invest in equipment.

...“There is a cost issue. It costs more to make it meet a performance spec. The nation doesn’t regard it as a high priority yet.”...

...“Testing costs a lot of money and manufacturers are going to test only if they have some incentive to do it. The Energy Star is a good way to go.”...

...“The ASTM procedures have to be renewed every 5 years. AS the FSTC goes through that process, when they get to the fryer once they invite fryer manufacturers in (for feedback and ownership).”...

...“It is nice to ask the players that are going to participate to be part of the solution.”...

- Some felt that the FSTC needed to partner with engineers from manufacturers, since engineers don’t attend ASTM.
- To the extent that they do use the tests, they are forced to by some large users...thus they don’t have ownership.

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Slide 14

Advisors agree that for manufacturers to adopt ASTM test methods they must make them part of the process and they should simplify the results so they can be more easily used.

...“The test method is very key.”...

...“One of the main focuses of the Center should be the pursuit of ASTM test development. The testing standard is in fact a major thing.”...

... “I think the end results should be more simplified, even for myself who is supposed to be a technical person, it is a little too complex. Even if we could get it to where these independent operators can see something simple.”...

...“If the Center can tie-in the cooking characteristics with the energy performance, they are going to reach more people and it is going to correlate.”...

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Slide 15

What should the FSTC do next?

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- The main focus of the Center should be ASTM test procedure development.
 - The FSTC should focus on key appliance types.

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