

2001 FEMP Customer Survey

Study Report

A Report Prepared for the
US Department of Energy

April 2002

By

TecMRKT Works and Sandia National Laboratories

TecMRKT Works
Nicholas P. Hall
Thomas P. Talerico
John H. Reed Ph.D
Jeff Riggert
Andrew Oh

And

Sandia National Laboratories
Gretchen Jordan

Acknowledgements

This project was conducted for the United States Department of Energy (DOE) Federal Energy Management Program (FEMP). We would like to thank the following FEMP management and staff without whose support this project would not be possible:

Beth Shearer, Joan Glickman, Ellyn Krevitz, Rick Klimkos, Annie Haskins, Nellie Greer, Katie McGervey, Tanya Sadler, Theodore Collins, Anne Crawley, Shawn Herrera, Tatiana Muessel, and Brad Gustafson.

We would also like to thank the many other FEMP employees and contractors who provided information on FEMP programs, products, services, or customers.

We would also like to thank Gretchen Jordan of Sandia National Laboratories. Dr. Jordan served as the project manager for the TecMRKT Works staff and provided valuable assistance, guidance and review throughout the project.

We would especially like to thank Ellyn Krevitz of the Federal Energy Management Program. Ms. Krevitz became an important member of the project management team, but more importantly, became personally committed to the quality and scope of the project. Her contributions are greatly appreciated.

This project was conducted for:

Elizabeth Shearer, Director
Joan Glickman, Deputy Director
Federal Energy Management Program
Room 6B-052
1000 Independence Avenue
Washington, DC 20585

This project was directed by:

Gretchen Jordan, Ph.D.
Sandia National Laboratories
950 L'Enfant Plaza, SW, Suite 110
Washington, DC, 20024
(202) 314-3040

This project was managed and conducted by:

TecMRKT Works
165 West Netherwood Road
Oregon, Wisconsin, 53575
(608) 835-8855

Summary of Key Findings

This summary presents the key findings and recommendations from the 2001 FEMP customer survey. In general, the survey found that participants in FEMP services are satisfied with the services they receive and that these services lead to more rapid and more numerous energy projects. The key findings presented in this summary are a condensed presentation of the more detailed findings presented in each of the chapters.

Chapter 1: Participant and Nonparticipant Profiles

Summary of findings

- FEMP is reaching and serving the federal agencies that use the most energy. FEMP is also reaching the right people in federal agencies who influence decisions for large numbers of buildings. Compared to nonparticipants, participants have higher levels of energy project responsibilities and are responsible for significantly more buildings.
- Differences between the comprehensiveness of the contact lists obtained from the Chicago region and the other DOE regions demonstrate the importance of building and maintaining good customer contact lists for both program marketing and evaluation.

Recommendations

- Build and maintain good customer contact lists for both program marketing and evaluation. FEMP is essentially in the business of selling energy efficiency services to the federal market. Accordingly, FEMP needs easily accessible information on the federal market in order to serve it effectively. FEMP should consider developing and maintaining a market tracking database similar to those used in the private sector. This database can be used to track customer contact information, marketing contacts made, customer interest and intent to use services, types of services used, and types of technologies installed as a result of using FEMP services.
- Continue successful efforts to target customers responsible for project planning, implementation, and large numbers of facilities.
- Market FEMP services to personnel with operations and maintenance responsibilities to involve more nonparticipants.

Chapter 2: Awareness and Use of FEMP Services

Summary of findings

- At least 80 percent of participants are aware of one or more of the five categories of FEMP services (financing services, project-specific technical assistance, technical information, general awareness and outreach, and the FEMP website) addressed by the survey.
- Participants are less aware of Energy Savings Performance Contracts (ESPCs) and SAVEnergy Audits than other categories of services.
- About half of FEMP nonparticipants are aware of FEMP. Also nonparticipants have somewhat low levels of awareness of the range of services offered by FEMP, particularly ESPCs and SAVEnergy Audits.
- In general, FEMP participants are most likely to use the FEMP website, technical information services, and general awareness services. They are least likely to use project-specific technical assistance and financing services.
- Publications and training are the most frequently cited technical information services used by participants. *FEMP Focus* and *You Have the Power Campaign* materials are the most frequently used general awareness efforts.
- ESPC and SAVEnergy Audits dominate the use of financing services and project-specific technical assistance, respectively. However, about 10 percent of respondents reported using utility financing.
- When we examine the patterns of services that are used, we find that most participants use multiple FEMP services. The website, technical information and the general awareness activities are most likely to be used in conjunction with other services. Participants using ESPC and SAVEnergy Audit services are highly likely to have used a broad range of services including the FEMP website.
- Depending on the service, between 75 to 90 percent of participants are very likely to continue using FEMP services.
- Continued and potential use of FEMP services is highest among the technical information services and general awareness and outreach efforts. It is lowest for the more project-specific services, such as financing services and project-specific technical assistance.
- When nonparticipants were asked if they would use FEMP services in the future, as many as half indicated that they are interested, indicating a sizable audience of nonparticipants that are interested in participation.

- Participants are also much more likely to use non-FEMP energy services than nonparticipants. This indicates that participants are supplementing FEMP services with other services. In addition, nonparticipants use fewer energy services in general.

Recommendations

- Continue successful efforts to maintain awareness and use of FEMP services. Because most participants use multiple FEMP services, these efforts should focus on the use of cross-program marketing to increase awareness and use of FEMP services, particularly the ESPC and the SAVEnergy Audit programs. In addition, these efforts should include more extensive customer follow-up contact, as this contact will yield positive results given that once a customer uses FEMP services the likelihood of continued use is relatively high.
- Develop a strategy to target the sizable audience of nonparticipants that are interested in participation. Nonparticipants have a higher interest in the use of FEMP technical information services and FEMP general awareness and outreach efforts than in the use of FEMP financing and FEMP project-specific technical assistance. Therefore, the strategy should emphasize the use of technical information services and general awareness and outreach efforts as an entrée into the use of more project-focused FEMP services among nonparticipants.

Chapter 3: Contact and Satisfaction with FEMP

Summary of findings

- Colleagues, peers and other personal contacts have a strong influence on the decision to use FEMP services.
- Participants have comparable levels of contact with each of the FEMP offices examined, including the FEMP headquarters, the national laboratories, DOE regional offices, and ESPC and SAVEnergy contractor offices.
- FEMP participants are very satisfied with their FEMP interaction and participation and report strong satisfaction with FEMP in the areas of knowledgeable staff, quality of service, objectiveness of service, service comprehensiveness, and timeliness of the assistance received.
- Participant satisfaction with FEMP overall is high, with an absence of a cluster of dissatisfied participants. On average, participants rate the level of satisfaction with FEMP at 8.1. This rating is comparable to ratings given by technical assistance participants surveyed in 1997 (8.3), 1998 (8.2), and in 1999 (8.0).
- Participant satisfaction with the five FEMP services addressed in the survey is also high, with an absence of a cluster of dissatisfied participants for any service. On average, satisfaction ratings for the five FEMP services range from a 8.0 to 8.3. These are very good satisfaction ratings and indicate that participants are satisfied with their use of FEMP services.
- Most all of FEMP participants think the benefits of obtaining services meet or exceed the total costs associated with obtaining those services.
- Participants report that FEMP technical assistance and information are the most useful services that FEMP offers. This is followed by ESPCs, the FEMP website, SAVEnergy Audits, printed materials and publications, and training, workshops and conferences.
- Satisfaction with FEMP is high enough that the most effective marketing method for FEMP services is through customer referrals and networking.

Recommendations

- Continue successful efforts to maintain customer satisfaction through the effective delivery of high quality, value-added services.
- Develop marketing strategies that emphasize and take advantage of customer referrals and networking. These strategies will be effective at increasing awareness and use of FEMP services due to the high satisfaction levels among FEMP customers and the

fact that colleagues, peers and other personal contacts have a strong influence on the decision to use FEMP services.

- Provide customers with contact information for the key FEMP contacts responsible for each of the major FEMP services so that customers know whom to call when they need information or assistance.
- Maintain timely and ongoing communications with participants in key FEMP services.

Chapter 4: Project Implementation and FEMP Influence

Summary of findings

- Participants in FEMP programs implement significantly more energy and water projects than nonparticipants.
- There is little difference in the level of management support for energy projects between participants and nonparticipants. Management support is perceived to be the highest among people with primary energy project responsibilities and lowest among project expeditors and people with secondary energy project responsibilities. The primary reasons for low management support ratings are that energy is a low priority among management and that management has limited interest in energy.
- There is little difference in the level of influence of Executive Orders between participants and nonparticipants. However, the influence of Executive Orders is stronger in the big four agencies than in second tier agencies for both participants and nonparticipants.
- Forty-six percent of FEMP participants document energy and cost savings, however, 80 percent of those that do are receptive to sharing this information with FEMP. Documentation is highest among participants in the Seattle region and lowest among participants in the Boston region.

Recommendations

- Continue successful efforts to work with customers in the implementation of energy efficiency, renewable energy, and water conservation projects.
- Fully utilize the information that participants are willing to share on the energy and cost savings from projects implemented through FEMP to demonstrate the energy impacts generated by FEMP. Also, consider developing easy-to-use methods for participants to document the energy and cost savings for projects, and make these methods readily available to participants. These methods can be based on methods that are currently being used by participants.

Chapter 5: Project Needs and Possible FEMP Roles

Summary of findings

- The need for energy-related technologies and energy support services is higher among participants than nonparticipants.
- Participants express the highest level of need for renewable energy services, followed somewhat closely by whole-building design services.
- Nonparticipants report the highest need for whole-building design services and maintenance and operations associated services.
- Roughly a third of participants and a quarter of nonparticipants report that they are currently searching for information about technologies and services related to energy projects.
- Renewables and energy generation and storage are mentioned most frequently by both participants and nonparticipants as the types of technologies and services about which they are searching for information.

Recommendations

- Continue to develop and provide information pertaining to renewables, whole-building design services, maintenance and operations associated services, and energy generation and storage as these are mentioned most frequently as the types of technologies and services in which customers are most interested. Also, inform customers that these services and information are available through FEMP.

Chapter 6: ESPC Impact Issues

Summary of findings

- FEMP ESPC services are moving federal customers through the ESPC contracting process to achieve higher levels of energy efficiency. FEMP is moving their participants through this process much faster than nonparticipants. While performance contracts are used outside of FEMP, they are used much less frequently. In addition, ESPC nonparticipants who do use performance contracts to finance energy projects do so at a much slower pace than do ESPC participants. FEMP is significantly accelerating the federal market toward the use of performance contracts to achieve energy savings in federal facilities.
- ESPC participants rate the influence of FEMP on their decision to use performance contracts three times greater than do nonparticipants who are informed about FEMP programs.
- ESPC participants implement an average of about three delivery orders per year.
- ESPC participants share information with their colleagues and peers, multiplying the impact of FEMP marketing efforts. On average, ESPC participants share information with 47 individuals inside of their organization and 43 individuals who work in other organizations. Aware ESPC nonparticipants also share ESPC information with their peers, however at reduced levels. These data indicate that both ESPC participants and nonparticipants share information with their peers, substantially increasing visibility of FEMP ESPC programs in the federal market.

Recommendations

- Continue successful efforts to accelerate the federal market toward the use of performance contracts to achieve energy savings in federal facilities.
- Develop marketing strategies that emphasize customer referrals and networking. These strategies will be effective at increasing awareness and use of FEMP ESPCs due to the high satisfaction levels among FEMP customers and the fact that both ESPC participants and nonparticipants share information with their peers, substantially increasing visibility of FEMP ESPC programs in the federal market.

Chapter 7: ESPC Market Issues

Summary of findings

- A large majority of ESPC participants says they plan to continue using FEMP ESPCs. Once a federal agency becomes an ESPC participant, the probability that they will continue to participate is very high. However, there are significant barriers associated with obtaining new participants.
- The more important reasons for using FEMP ESPCs include the ability to obtain energy efficiency improvements and equipment that could not be made without ESPC, to avoid going after additional federal appropriations, and to free up existing resources.
- Both ESPC participants and nonparticipants who are aware of FEMP ESPCs report that using FEMP ESPCs is difficult. This is especially true for customers who have not yet implemented a delivery order and for customers just becoming or considering use of ESPCs.
- There are substantial barriers to using FEMP ESPCs. Among the most important are the length of the contract / delivery order, the perceived complexity of the process, high user fees, the involvement of outside agencies, the belief that their facilities are already efficient, and lack of confidence in the estimated savings.
- ESPC participants suggest that FEMP target program marketing materials at facility-related managers, administrators, and supervisors; engineers; and energy or environmental managers and coordinators.

Recommendations

- Continue successful efforts to maintain awareness and use of FEMP ESPCs. These efforts should utilize more extensive customer follow-up because once a federal agency becomes an ESPC participant, the probability that they will continue to participate is very high.
- The ESPC participation process needs to be streamlined. The streamlining needs to focus on the ease of participation and faster, less time-consuming procedures. Participants and potential participants need to view the ESPC process as fast, easy and efficient, consuming as little of their time and effort as possible.
- Marketing for the ESPC program should highlight the program's ability to (1) obtain energy efficiency improvements and equipment that could not be made without ESPC, (2) avoid going after additional federal appropriations, and (3) free up existing resources.

- Target program marketing materials at facility-related managers, administrators, and supervisors; engineers; and energy or environmental managers and coordinators.
- Conduct more in-depth customer evaluations that focus specifically on obtaining more detailed information on the barriers to using ESPCs and the ways that these barriers can be overcome. This information can then be used by FEMP to develop and test operational designs and procedures to help eliminate these barriers. This can be accomplished through the use of focus groups or in-depth interviews with key participants and nonparticipants.

Chapter 8: ESPC Process Issues

Summary of findings

- Seventy-one percent of all ESPC participants report an ideal contract length of 10 years or less. On average, participants report about 9 years as the ideal term length and 13 years as the maximum term length that they are willing to accept. The most common response (mode) given for the ideal term length is 10 years while the most common response given for the maximum term length is 15 years.
- Average satisfaction ratings are less than 8 (on a 10-point scale where 1 means very dissatisfied and 10 means very satisfied) for program follow-up and support, the amount of energy savings, and the time it takes to establish a delivery order/contract. These ratings indicate that these are areas for FEMP to address to increase satisfaction with the ESPC program.

Recommendations

- Federal agencies need the ability to enter into short-term delivery orders. FEMP should consider allowing flexible obligation periods consistent with agency needs, allowing agencies to adopt projects that provide for more rapid cost recovery and reduced periods of agency obligation.
- Agencies want ESPC project support that is fast, efficient, and customized to their individual needs. However, not all customers want or need FEMP support. FEMP should consider designing an adaptive project follow-up effort to cover additional technical assistance that includes project and process advice to agencies, working with agencies to identify high energy savings technologies, providing examples of projects that work well and save substantial amounts of energy, and other services consistent with a broad array of agency-specific or office-specific needs.
- ESPC customers are somewhat satisfied with their level of energy savings. This needs to be addressed. FEMP customers (who perceive their savings to be lower than expected) can network with other agencies and potentially harm the ESPC program. FEMP should consider efforts to help participants understand the level of savings they are getting in a way that participants view the savings as significant.
- The ESPC participation process needs to be streamlined. The streamlining needs to focus on the ease of participation and faster, less time-consuming procedures. Participants and potential participants need to view the ESPC process as fast, easy and efficient, consuming as little of their time and effort as possible. Currently the process required to establish a delivery order is a barrier to participation.

Chapter 9: SAVEnergy Audit Impact Issues

Summary of findings

- The FEMP SAVEnergy Audit program is moving federal customers through the process of using audits to achieve higher levels of energy efficiency in federal buildings. FEMP is moving their participants through this process much faster than nonparticipants who use the services of other audit providers. While energy audits are conducted outside of FEMP, they are used much less frequently. In addition, SAVEnergy Audit nonparticipants who do use audits to identify opportunities do so at a much slower pace than do SAVEnergy Audit participants. FEMP is significantly accelerating the federal market toward the use of energy audits to achieve energy savings in federal facilities.
- FEMP is also successful at helping federal facility managers who have, on-their-own, decided not to use energy audits available in the commercial market, change their mind and use FEMP SAVEnergy Audits.
- SAVEnergy Audit participants have conducted an average of 7.5 SAVEnergy Audits in their facilities. In a typical year, these participants implement an average of 4.3 energy projects based on the recommendations presented in their audit report.
- A strong majority (70%) of SAVEnergy Audit participants and 38 percent of nonparticipants who are aware of SAVEnergy Audits, share information about the SAVEnergy Audit program with their colleagues and peers. Of these, most all share information within their organization, and about half share information outside of their organization.

Recommendations

- Continue successful efforts to accelerate the federal market toward the use of energy audits to achieve energy savings in federal facilities.
- Develop marketing strategies that emphasize customer referrals and networking. These strategies will be effective at increasing awareness and use of FEMP SAVEnergy Audits due to the high satisfaction levels among FEMP customers and the fact that both SAVEnergy Audit participants and nonparticipants share information with their peers, substantially increasing visibility of FEMP SAVEnergy Audits in the federal market.

Chapter 10: SAVEnergy Audit Market Issues

Summary of findings

- A large majority of SAVEnergy Audit participants report that they plan to continue using SAVEnergy Audits. Once a federal agency becomes an audit participant the probability that they will continue to participate is very high. However, there are cost and difficulty barriers associated with obtaining new participants.
- The more important reasons for using SAVEnergy Audit services include the ability to identify ways to reduce energy consumption and to comply with agency energy management plans.
- The majority of SAVEnergy Audit participants report that using SAVEnergy Audits is an easy process, however, many nonparticipants familiar with the SAVEnergy Audits report that they think the process is more difficult to use.
- Lack of funding to take the recommended actions is the most substantial barrier to using the FEMP SAVEnergy Audit program. For many customers, it makes little sense to have an audit if there are no funds to do something with the results.
- Audit participants suggest that FEMP target program marketing materials at energy or environmental staff and specialists; facility-related managers, administrators, supervisors; and engineers.

Recommendations

- Continue successful efforts to maintain awareness and use of FEMP SAVEnergy Audits. These efforts should utilize more extensive, ongoing customer follow-up contact because once a federal agency becomes a SAVEnergy Audits participant, the probability that they will continue to participate is very high. This contact can help maintain the use of SAVEnergy Audits as part of the agency planning process.
- Continue successful efforts at ensuring that the SAVEnergy Audit program is easy to use. Reduce the impact of hassle and cost barriers, where possible.
- Work with agencies to increase awareness of FEMP funding programs and services, as lack of funding to take the recommended actions is the most substantial barrier to using FEMP SAVEnergy Audit program.
- Marketing for the SAVEnergy Audit program should highlight the program's ability to (1) identify ways to reduce energy consumption and (2) comply with agency energy management plans.
- Target program marketing materials at energy or environmental staff and specialists; facility-related managers, administrators, supervisors; and engineers.

- Conduct more in-depth customer evaluations that focus specifically on obtaining more detailed information on the barriers to using SAVEnergy Audits and the ways that these barriers can be overcome. This information can then be used by FEMP to develop and test operational designs and procedures to help eliminate these barriers. This can be accomplished through the use of focus groups or in-depth interviews with key participants and nonparticipants.

Chapter 11: SAVEnergy Audit Process Issues

Summary of findings

- Fifty-three percent of audit participants report that they received suggestions from FEMP or the FEMP auditing staff about how to use project financing ESPCs to implement audit recommendations, and 30 percent report that the audit recommendations lead to ESPC participation. These results show the potential increasing participation in FEMP programs through cross-program marketing.
- Audit participants say that the audit is currently being delivered to the right people in their organization.
- Participants rate satisfaction with three of the six aspects (the ease of understanding the written audit report, the knowledge and skills of the FEMP auditing team, and the practicality of audit recommendations for the facility) addressed by the survey higher than 8 on a 10 point scale. These are very good satisfaction ratings and indicate that audit participants are satisfied with these aspects.
- Participants rate three of the six aspects (project follow-up and support from FEMP after the audit, the amount of time from when the audit was first requested to when recommendations were delivered, and the way the audit addressed indoor air quality issues) addressed by the survey at or below a score of 7 on a 10-point scale. Because the average satisfaction ratings are less than 8 for these aspects, FEMP managers may want to identify program design changes that can help increase these satisfaction ratings.

Recommendations

- Continue to capitalize on the opportunities that the SAVEnergy Audit program provides for marketing other FEMP services.
- Improve follow-up and ongoing support to customers after the audit is complete. Agencies want project support that is fast, efficient, and customized to their needs. FEMP should consider designing adaptive project follow-up support for (1) optional customized follow-up technical advice, analysis, and assistance and (2) a system for helping customers identify additional opportunities for savings that is linked to the audit service.
- Shorten the period of time that elapses between the time the audit is requested and the delivery of recommendations.
- If not currently implemented in each regional office, have SAVEnergy Audit participant data forwarded to regional ESPC managers. Regional ESPC managers can then review the SAVEnergy Audit report and recommendations for each

participant to more effectively market ESPC services to SAVEnergy Audit participants.

Chapter 12. Study Methodology

Summary of findings

- The Chicago regional office was able to provide more detailed contact lists for both program participants and nonparticipants. This significantly aided the survey process, especially the ability to contact nonparticipants. The differences between the comprehensiveness of the contact lists obtained from the regional offices demonstrates the importance of building and maintaining good agency contact data for both program marketing and documentation.
- The sample was drawn to provide a set of findings for selected government-wide FEMP activities that are precise to within ± 5 percent of the values presented in the survey. The FEMP-wide information is very reliable as a single survey of a single group of FEMP customers. The sample was also drawn so that statistically significant conclusions about the ESPC program and the SAVEnergy Audit program can be reported with a good degree of reliability. The sample, however, was not drawn to be reliable at the USDOE regional level or at the user agency level.
- The FEMP participant sample appears to represent a good cross-section of agencies based on levels of energy use, agency size, and use of FEMP services. The sample appears to accurately reflect the opinions and perspectives of the full range of FEMP customers.

Table of Contents

ACKNOWLEDGEMENTS	I
SUMMARY OF KEY FINDINGS	III
Chapter 1: Participant and Nonparticipant Profiles	iii
Summary of findings	iii
Recommendations	iii
Chapter 2: Awareness and Use of FEMP Services	iv
Summary of findings	iv
Recommendations	v
Chapter 3: Contact and Satisfaction with FEMP	vi
Summary of findings	vi
Recommendations	vi
Chapter 4: Project Implementation and FEMP Influence	viii
Summary of findings	viii
Recommendations	viii
Chapter 5: Project Needs and Possible FEMP Roles	ix
Summary of findings	ix
Recommendations	ix
Chapter 6: ESPC Impact Issues	x
Summary of findings	x
Recommendations	x
Chapter 7: ESPC Market Issues	xi
Summary of findings	xi
Recommendations	xi
Chapter 8: ESPC Process Issues	xiii
Summary of findings	xiii
Recommendations	xiii
Chapter 9: SAVEnergy Audit Impact Issues	xiv
Summary of findings	xiv
Recommendations	xiv
Chapter 10: SAVEnergy Audit Market Issues	xv
Summary of findings	xv
Recommendations	xv
Chapter 11: SAVEnergy Audit Process Issues	xvii
Summary of findings	xvii
Recommendations	xvii
Chapter 12. Study Methodology	xix

Summary of findings	xix
TABLE OF CONTENTS	XXI
LIST OF FIGURES	XXVII
LIST OF TABLES	XXIX
1. PARTICIPANT AND NONPARTICIPANT PROFILES	1
Participant and nonparticipant classification method	1
DOE regional distribution	1
Agency distribution	2
Energy project responsibilities	5
Number of facilities directly affected by decisions	10
Summary of findings	11
Recommendations	11
2. AWARENESS AND USE OF FEMP SERVICES	13
Awareness of FEMP services	13
Use of FEMP services	16
Financing services	18
Project-specific technical assistance	18
Technical information	18
General awareness and outreach efforts	19
FEMP website	19
How participants use FEMP services	21
Likelihood of continued and potential use of FEMP services	22
Financing services	23
Project-specific technical assistance	25
Technical information	27
General awareness and outreach efforts	29
Use of services from sources not affiliated with FEMP	32
Summary of findings	35
Recommendations	36
3. CONTACT AND SATISFACTION WITH FEMP	37

Contacts with the greatest influence on decision to use FEMP services	37
Type of contact with whom communicate most	39
Satisfaction with FEMP contact	42
Overall satisfaction with specific FEMP services	47
Costs vs. benefits of FEMP services	52
Most and least useful FEMP services	54
Summary of findings	55
Recommendations	56
4. PROJECT IMPLEMENTATION AND FEMP INFLUENCE	57
Energy efficiency, renewable energy, and water conservation projects	57
General level of support received from senior management	62
Influence of Executive Orders	66
Documentation of energy or cost savings and receptivity to FEMP using documentation	67
Summary of findings	69
Recommendations	70
5. PROJECT NEEDS AND POSSIBLE FEMP ROLES	71
Need for assistance with technologies and services	71
Searching for information on other technologies and services	74
Other types of project assistance recommended for FEMP to develop and provide	76
Summary of findings	77
Recommendations	77
6. FEMP ESPC IMPACT ISSUES	79
Stages of adoption	79
Movement of FEMP ESPC participants through the adoption cycle	79
Movement of FEMP ESPC nonparticipants who are aware of FEMP ESPCs through the adoption cycle	81
Position of FEMP ESPC nonparticipants who are unaware of FEMP ESPCs in the adoption cycle	84
Implementation of delivery orders or contracts through FEMP ESPCs	85
Influence of FEMP ESPCs on how financing for major energy projects is obtained	87

Provided colleagues with information about FEMP ESPCs	90
Summary of findings	92
Recommendations	93
7. FEMP ESPC MARKET ISSUES	95
Continued and potential use of FEMP ESPCs	95
Reasons for using FEMP ESPCs	98
Ease in using financing through FEMP ESPCs	104
Barriers to using FEMP ESPCs	106
Types of people FEMP should approach when promoting ESPC	111
Summary of findings	111
Recommendations	112
8. FEMP ESPC PROCESS ISSUES	113
FEMP ESPC delivery order/contract term length	113
Satisfaction with aspects of FEMP ESPCs	115
Suggestions for FEMP to improve ESPC	120
Summary of findings	121
Recommendations	121
9. FEMP SAVENERGY AUDIT IMPACT ISSUES	123
Stages of adoption	123
Movement of SAVEnergy Audit participants through the adoption cycle	123
Movement of SAVEnergy Audit nonparticipants who are aware of FEMP SAVEnergy Audits through the adoption cycle	125
Position of SAVEnergy Audit nonparticipants who are unaware of FEMP SAVEnergy Audits in the adoption cycle	128
Implementation of energy improvements based on FEMP SAVEnergy Audits	131
Influence of FEMP SAVEnergy Audits on how energy improvements are identified	134
Provided colleagues with information about FEMP SAVEnergy Audits	136
Summary of findings	139
Recommendations	140

10. FEMP SAVENERGY MARKET ISSUES	141
Continued and potential use of FEMP SAVEnergy Audits	141
Reasons for using FEMP SAVEnergy Audits	146
Ease in having a FEMP SAVEnergy Audit performed	150
Barriers to using FEMP SAVEnergy Audits	152
Types of people FEMP should approach when promoting SAVEnergy Audits	157
Summary of findings	157
Recommendations	158
11. FEMP SAVENERGY AUDIT PROCESS ISSUES	159
How participants use FEMP SAVEnergy Audit recommendations	159
Satisfaction with aspects of FEMP SAVEnergy Audits	160
Suggestions for improving FEMP SAVEnergy Audits	164
Summary of findings	165
Recommendations	166
12. STUDY METHODOLOGY	167
Interviews with staff	167
Survey development process	167
Survey implementation process	168
Sampling population	169
Sample Design	173
Survey procedures	175
Limitations of using the FEMP study findings	175
Nationally reliable findings	176
Program level findings	176
Agency level findings	176
DOE regional analysis	176
Summary of findings	177

List of Figures

Figure 1 Tree diagram of use of FEMP services 22

List of Tables

Table 1	Participants and nonparticipants by region.....	2
Table 2	Participants and nonparticipants by region without the Chicago region	2
Table 3	Distribution of survey completions by agency and federal contractors.....	3
Table 4	Distribution of survey completions by agency group and federal contractors	5
Table 5	Level of energy project responsibilities.....	6
Table 6	Mean standardized z-scores for types of responsibilities by responsibility group	8
Table 7	Types of responsibilities associated with each energy project responsibility group	9
Table 8	Distribution of participants and nonparticipants by responsibility	10
Table 9	Number of buildings directly affected by decisions	10
Table 10	Awareness of FEMP – in general and by service	14
Table 11	Awareness of FEMP in general by region	15
Table 12	Awareness of FEMP in general by responsibility	15
Table 13	Awareness of FEMP in general by agency and federal contractors	16
Table 14	Participant use of FEMP services	16
Table 15	Participant use of FEMP services by region, responsibility, agency, and federal contractors.....	17
Table 16	Use of FEMP financing services	18
Table 17	Use of project-specific technical assistance.....	18
Table 18	Use of technical information.....	18
Table 19	Use of FEMP general awareness and outreach efforts	19
Table 20	Use of the FEMP website	20
Table 21	Types of information obtained by users of the FEMP website.....	20
Table 22	Participant use of FEMP services	21
Table 23	Likelihood of continued and potential use of FEMP financing services	23
Table 24	Reasons for rating likelihood to continue using FEMP financing services at 7 or less among participants	24
Table 25	Reasons for rating likelihood to use FEMP financing services at 7 or less among nonparticipants	24
Table 26	Likelihood of continued and potential use of FEMP project-specific technical assistance.....	25
Table 27	Reasons for rating likelihood to continue using FEMP project-related assistance at 7 or less among participants.....	26
Table 28	Reasons for rating likelihood to use FEMP project-specific technical assistance at 7 or less among nonparticipants.....	27
Table 29	Likelihood of continued and potential use of FEMP technical information.....	28
Table 30	Reasons for rating likelihood to continue using FEMP technical information at 7 or less among participants.....	29
Table 31	Reasons for rating likelihood to use FEMP technical information at 7 or less among nonparticipants	29
Table 32	Likelihood of continued and potential use of FEMP general awareness and outreach efforts	30

Table 33	Reasons for rating likelihood to continue using FEMP general awareness and outreach efforts at 7 or less among participants.....	31
Table 34	Reasons for rating likelihood to use FEMP general awareness and outreach efforts at 7 or less among nonparticipants	31
Table 35	Use of services from sources not affiliated with FEMP	33
Table 36	Reasons for not using financing services from FEMP	33
Table 37	Reasons for not using project-specific technical assistance from FEMP	34
Table 38	Reasons for not using technical information from FEMP	34
Table 39	Reasons for not using general awareness and outreach efforts from FEMP	35
Table 40	Type of contact with greatest influence on decision to use FEMP services.....	37
Table 41	Other contacts with greatest influence on decision to use FEMP services.....	38
Table 42	Type of contact with greatest influence on decision to use FEMP services by region	38
Table 43	Type of contact with whom communicate most when dealing with FEMP	39
Table 44	Other contacts with whom communicate most when dealing with FEMP.....	39
Table 45	Type of contact with whom communicate most when dealing with FEMP by region	40
Table 46	Type of contact with whom communicate most when dealing with FEMP by responsibility.....	41
Table 47	Satisfaction with aspects of FEMP contact.....	42
Table 48	Satisfaction with aspects of FEMP contact by region, responsibility, agency, and federal contractors	43
Table 49	Satisfaction with aspects of FEMP contact by type of contact with who communicated most	44
Table 50	Suggestions for improving knowledge of staff.....	45
Table 51	Suggestions for improving quality of assistance	45
Table 52	Suggestions for improving timeliness of assistance	46
Table 53	Suggestions for improving objectivity of assistance	46
Table 54	Suggestions for improving ease of contacting and interacting with staff.....	47
Table 55	Suggestions for improving comprehensiveness of assistance	47
Table 56	Satisfaction with FEMP services – overall and by service	48
Table 57	Satisfaction with FEMP services by region, responsibility, agency, and federal contractors	49
Table 58	Reasons for rating satisfaction with FEMP overall at 7 or less	50
Table 59	Reasons for rating satisfaction with FEMP financing services at 7 or less	50
Table 60	Reasons for rating satisfaction with project-specific technical assistance at 7 or less.....	51
Table 61	Reasons for rating satisfaction with FEMP technical information at 7 or less.	51
Table 62	Reasons for rating satisfaction with FEMP general awareness and outreach efforts at 7 or less.....	52
Table 63	Reasons for rating satisfaction with the FEMP website at 7 or less	52
Table 64	Costs vs. benefits of FEMP services.....	53
Table 65	Costs vs. benefits of FEMP services by responsibility.....	53
Table 66	Most useful FEMP services	54
Table 67	Least useful FEMP services.....	55

Table 68	Implementation of energy efficiency, renewable energy, and water conservation projects	58
Table 69	Participant implementation of energy efficiency, renewable energy, and water conservation projects by region, responsibility, agency, and federal contractors	60
Table 70	Nonparticipant implementation of energy efficiency, renewable energy, and water conservation projects by region, responsibility, agency, and federal contractors	62
Table 71	Level of senior management support for implementing energy projects	63
Table 72	Reasons for rating level of senior management support at 7 or less.....	64
Table 73	Level of senior management support for implementing energy projects by region	64
Table 74	Level of senior management support for implementing energy projects by agency and federal contractors.....	65
Table 75	Level of senior management support for implementing energy projects by responsibility.....	65
Table 76	Influence of Executive Orders	66
Table 77	Influence of Executive Orders by agency and federal contractors	67
Table 78	Documentation of energy or cost savings and receptivity to FEMP using documentation.....	67
Table 79	Documentation of energy or cost savings and receptivity to FEMP using documentation by region.....	68
Table 80	Documentation of energy or cost savings and receptivity to FEMP using documentation by agency.....	68
Table 81	Documentation of energy or cost savings and receptivity to FEMP using documentation by responsibility.....	69
Table 82	Level of need for new services among participants.....	71
Table 83	Level of need for new services among nonparticipants.....	72
Table 84	Level of need for new services among participants by region, responsibility, agency, and federal contractors.....	73
Table 85	Level of need for new services among nonparticipants by region, responsibility, agency, and federal contractors.....	74
Table 86	Searching for information on other technologies and services.....	74
Table 87	Technologies or services searching for information about.....	75
Table 88	Searching for information on other technologies and services by region, responsibility, agency, and federal contractors.....	76
Table 89	Types of assistance FEMP should provide	77
Table 90	Movement of FEMP ESPC participants through the adoption cycle	80
Table 91	FEMP ESPC participants in the implementation or confirmation stage by region, responsibility, agency, and federal contractors.....	81
Table 92	Movement of aware ESPC nonparticipants through the adoption cycle	82
Table 93	Aware ESPC nonparticipants in the implementation or confirmation stage by region, responsibility, agency, and federal contractors.....	83
Table 94	Position of unaware ESPC nonparticipants in the adoption cycle.....	84
Table 95	Unaware ESPC nonparticipants in the implementation or confirmation stage by region, responsibility, agency, and federal contractors.....	85
Table 96	Level of implementation among ESPC participants.....	86

Table 97	Number of delivery orders or contracts participants have implemented through FEMP ESPCs	86
Table 98	Level of implementation among ESPC participants by ease of use, region, responsibility, agency, and federal contractors	87
Table 99	Influence of ESPC on how financing for major energy projects is obtained ...	88
Table 100	Influence of ESPC on how financing for major energy projects is obtained by stage of adoption, ease of use, region, responsibility, agency, and federal contractors	89
Table 101	Use of SAVEnergy Audits by ESPC participants	90
Table 102	Provided colleagues with information about ESPC	91
Table 103	Provided colleagues with information about ESPC by stage of adoption, ease of use, region, responsibility, agency, and federal contractors	92
Table 104	Likelihood of continued and potential use of FEMP ESPCs	95
Table 105	Reasons for rating likelihood to continue using FEMP ESPCs at 7 or less among ESPC participants	96
Table 106	Reasons for rating likelihood to use FEMP ESPCs at 7 or less among aware ESPC nonparticipants	96
Table 107	Reasons for rating likelihood to use FEMP ESPCs at 7 or less among unaware ESPC nonparticipants	97
Table 108	Likelihood of continued and potential use of ESPC by stage of adoption, ease of use, region, responsibility, agency, and federal contractors	98
Table 109	Reasons for using FEMP ESPCs among participants	99
Table 110	Reasons for using FEMP ESPCs among aware nonparticipants	100
Table 111	Reasons for using FEMP ESPCs among participants by stage of adoption, ease of use, region, responsibility, agency, and federal contractors	101
Table 112	Reasons for using FEMP ESPCs among aware nonparticipants by stage of adoption, ease of use, region, responsibility, agency, and federal contractors	103
Table 113	Ease in using financing through FEMP ESPCs	104
Table 114	Reasons for rating FEMP ESPCs as difficult to use	105
Table 115	Percent rating use of financing through ESPC as difficult by stage of adoption, region, responsibility, agency, and federal contractors	106
Table 116	Barriers to using FEMP ESPCs among ESPC participants	107
Table 117	Barriers to using FEMP ESPCs among aware ESPC nonparticipants	108
Table 118	Barriers to using FEMP ESPCs among ESPC participants by stage of adoption, ease of use, region, responsibility, agency, and federal contractors	109
Table 119	Barriers to using FEMP ESPCs among aware ESPC nonparticipants by stage of adoption, ease of use, region, responsibility, agency, and federal contractors ...	110
Table 120	Types of people FEMP should approach when promoting ESPC	111
Table 121	FEMP ESPC delivery order/contract term length among participants	114
Table 122	FEMP ESPC delivery order/contract term length among participants by region	114
Table 123	FEMP ESPC delivery order/contract term length among participants by responsibility	115
Table 124	Participant satisfaction with aspects of FEMP ESPCs	116
Table 125	Reasons for rating satisfaction with period of time needed to establish ESPC contract at 7 or less	117

Table 126	Reasons for rating satisfaction with amount of savings through ESPC contract at 7 or less	118
Table 127	Reasons for rating satisfaction with FEMP project follow-up or support at 7 or less.....	118
Table 128	Participant satisfaction with aspects of FEMP ESPC by region.....	119
Table 129	Participant satisfaction with aspects of FEMP ESPC by responsibility	119
Table 130	Participant satisfaction with aspects of ESPC by agency and federal contractors.....	120
Table 131	Suggestions for FEMP to improve ESPC	121
Table 132	Movement of SAVEnergy Audit participants through the adoption cycle...	124
Table 133	SAVEnergy Audit participants in the implementation or confirmation stage by region, responsibility, agency, and federal contractors.....	125
Table 134	Movement of aware SAVEnergy Audit nonparticipants through the adoption cycle	127
Table 135	Aware SAVEnergy Audit nonparticipants in the implementation or confirmation stage by region, responsibility, agency, and federal contractors.....	128
Table 136	Position of unaware SAVEnergy Audit nonparticipants in the adoption cycle	129
Table 137	Unaware SAVEnergy Audit nonparticipants in the implementation or confirmation stage by region responsibility, agency, and federal contractors.....	130
Table 138	Level of energy improvement implementation based on SAVEnergy Audits	131
Table 139	Number of FEMP SAVEnergy Audits conducted and projects implemented based on recommendations	132
Table 140	Level of energy improvement implementation based on SAVEnergy Audits by ease of use, region, responsibility, agency, and federal contractors	133
Table 141	Technologies installed due to FEMP SAVEnergy Audits.....	134
Table 142	Influence of SAVEnergy Audits on how energy improvements are identified	134
Table 143	Influence of FEMP SAVEnergy Audits on how energy improvements are identified by stage of adoption, ease of use, region, responsibility, agency, and federal contractors.....	136
Table 144	Provided colleagues with information about SAVEnergy Audits	137
Table 145	Provided colleagues with information about FEMP SAVEnergy Audits by stage of adoption, ease of use, region, responsibility, agency, and federal contractors	139
Table 146	Likelihood of continued and potential use of FEMP SAVEnergy Audits....	142
Table 147	Reasons for rating likelihood to continue using SAVEnergy Audits at 7 or less among SAVEnergy Audit participants	143
Table 148	Reasons for rating likelihood to use SAVEnergy Audits at 7 or less among aware SAVEnergy Audit nonparticipants.....	143
Table 149	Reasons for rating likelihood to use SAVEnergy Audits at 7 or less among unaware SAVEnergy Audit nonparticipants.....	144
Table 150	Likelihood of continued and potential use of SAVEnergy Audits by stage of adoption, ease of use, region, responsibility, agency, and federal contractors	145
Table 151	Reasons for using FEMP SAVEnergy Audits among participants.....	146

Table 152	Reasons for using FEMP SAVEnergy Audits among aware nonparticipants	147
Table 153	Reasons for using FEMP SAVEnergy Audits among participants by stage of adoption, ease of use, region, responsibility, agency, and federal contractors	148
Table 154	Reasons for using FEMP SAVEnergy Audits among aware nonparticipants by stage of adoption, ease of use, region, agency, and responsibility	149
Table 155	Ease in having a SAVEnergy Audit performed.....	150
Table 156	Reasons for rating FEMP SAVEnergy Audit as difficult to use	151
Table 157	Percent rating use of FEMP SAVEnergy Audits as difficult by stage of adoption, region, responsibility, agency, and federal contractors.....	152
Table 158	Barriers to using FEMP SAVEnergy Audits among participants.....	153
Table 159	Barriers to using FEMP SAVEnergy Audits among aware nonparticipants	154
Table 160	Barriers to using FEMP SAVEnergy Audits among participants by stage of adoption, ease of use, region, responsibility, agency, and federal contractors	155
Table 161	Barriers to using FEMP SAVEnergy Audits among aware nonparticipants by stage of adoption, ease of use, region, responsibility, agency, and federal contractors	156
Table 162	Types of people FEMP should approach when promoting SAVEnergy Audits	157
Table 163	Use of FEMP SAVEnergy Audit recommendations	159
Table 164	Who should be receiving FEMP SAVEnergy Audit recommendations.....	160
Table 165	Satisfaction with aspects of FEMP SAVEnergy Audit	161
Table 166	Reasons for rating satisfaction with ease of understanding audit report at 7 or less.....	161
Table 167	Reasons for rating satisfaction with knowledge and skills of auditing team at 7 or less	162
Table 168	Reasons for rating satisfaction with practicality of audit recommendations at 7 or less	162
Table 169	Reasons for rating satisfaction with project follow-up and support from FEMP at 7 or less	163
Table 170	Reasons for rating satisfaction with amount of time for audit process at 7 or less.....	163
Table 171	Reasons for rating satisfaction with the way the audit addressed indoor air quality issues at 7 or less.....	164
Table 172	Suggestions for FEMP to improve SAVEnergy Audit.....	164
Table 173	Suggestions for FEMP to facilitate implementation of audit recommendations	165
Table 174	Count of records in FEMP sample population by organization type.....	171
Table 175	Count of unique persons by state and regional offices	172
Table 176	Survey quotas.....	174

1. Participant and Nonparticipant Profiles

In this chapter, we discuss the characteristics of participants and nonparticipants based on our analysis of the 811 survey respondents. These respondents include 413 participants and 398 nonparticipants. Participants and nonparticipants are described by agency, Department of Energy (DOE) region, job responsibility, and the number of buildings for which they make decisions.

Participant and nonparticipant classification method

Participants

Participants are defined as federal employees or their contractors who are aware of the Federal Energy Management Program (FEMP) and its services and who have used one or more FEMP services other than the FEMP website in the last two years.

In this report, we classify nonparticipants into the following two groups.

Uninitiated nonparticipants

The first group consists of respondents who may or may not be aware of FEMP or FEMP services and who report that they have not used any FEMP services in the last two years. We refer to this group as *uninitiated nonparticipants*; that is, any contact or information exchanged between FEMP and these respondents has not initiated any use of FEMP services.

Initiated nonparticipants

The second group consists of respondents who indicate that they have used some form of FEMP service in the last two years but who were unable to identify the type of services they have used. We will refer to this group as *initiated nonparticipants*; that is, contact or information exchanged between FEMP and these respondents has initiated some form of interaction with FEMP, but not to the extent that the respondent is able to identify any specifics of that interaction. Participants, on the other hand, are able to specify the service that they have used or provide some form of service description.

Of the 398 nonparticipants surveyed, 313 respondents (79%) are classified as uninitiated nonparticipants and 85 respondents (21%) are classified as initiated nonparticipants.

DOE regional distribution

If we compare surveyed participants and nonparticipants by DOE region (Table 1), the largest percentage of participants (26%) is from the Philadelphia region and the largest percentage of nonparticipants (56%) is from the Chicago region. The Boston region has the fewest participants and nonparticipants (6% and 4%, respectively) in our sample. The percentage of participants across each of the remaining regions is between 15 and 18 percent. The primary reason why the percentage of nonparticipants is higher in the Chicago region is that the Chicago regional office provided a much more extensive list of

nonparticipant contacts than the other regions. The higher percentage of surveyed nonparticipants in the Chicago region should not be interpreted to mean that the Chicago region has a higher percentage of nonparticipants compared to other regions. However, the differences between the comprehensiveness of the contact lists obtained from the Chicago region and the other DOE regions demonstrate the importance of building and maintaining good customer contact lists for both program marketing and evaluation.

Table 1 Participants and nonparticipants by region

Region	Percent of FEMP participants (N=413)	Percent of FEMP nonparticipants		
		Overall (N=398)	Uninitiated nonparticipants (N=313)	Initiated nonparticipants (N=85)
Philadelphia	26	14	11	22
Chicago	18	56	61	37
Seattle	18	8	9	5
Denver	17	10	9	14
Atlanta	15	8	6	15
Boston	6	4	4	7

Excluding the Chicago region (Table 2), the distribution of participants across regions is comparable to the distribution of nonparticipants across regions. Philadelphia is the region with the highest percentage of participants and nonparticipants (32% and 31%, respectively) and Boston is the region with the lowest percentage of participants and nonparticipants (7% and 10%, respectively).

Table 2 Participants and nonparticipants by region without the Chicago region

Region	Percent of FEMP participants (N=338)	Percent of FEMP nonparticipants overall (N=175)
Philadelphia	32	31
Seattle	22	19
Denver	21	22
Atlanta	18	18
Boston	7	10

Agency distribution

The respondents in this survey represent 27 different federal agencies and a group of private contractors who have contracts with one or more federal agencies, which we refer to as federal contractors. Although respondents who are federal contractors work directly with federal agencies, we did not group them with the agencies they serve because the survey results show that they are different from respondents employed directly by federal agencies. Table 3 presents the distribution of survey completions with participants and nonparticipants by agency and federal contractors.

Thirty-two percent of the surveyed participants are from the Department of Defense (DOD). This is reasonable because the DOD is the largest user of energy in the federal government. The Veterans Administration (VA), the Department of the Interior (DOI), and the General Services Administration (GSA) each represent between 6 and 8 percent of surveyed participants. Nineteen agencies have 3 percent or fewer respondents represented in the study.

For most of the agencies, the percentages of participants and nonparticipants in the study are about the same, although there are a few differences. The largest difference in participants and nonparticipants is within the Department of Agriculture (USDA). The USDA has a much higher percentage of nonparticipants (15%) than participants (3%). USDA field offices are quite common in the Chicago region and are well represented on the Chicago region customer contact list.

Federal contractors represent 15 percent of surveys with participants and 12 percent of surveys with nonparticipants.

Table 3 Distribution of survey completions by agency and federal contractors

Agency	Percent of FEMP participants (N=413)	Percent of FEMP nonparticipants		
		Overall (N=398)	Uninitiated nonparticipants (N=313)	Initiated nonparticipants (N=85)
Department of Defense (DOD)	32.0	27.4	25.9	32.9
Veterans Administration (VA)	8.0	5.0	4.5	7.1
Department of the Interior (DOI)	7.7	7.8	8.3	5.9
General Services Administration (GSA)	6.5	9.3	9.6	8.2
Department of Transportation (DOT)	3.9	7.3	8.3	3.5
United States Postal Service (USPS)	3.9	3.0	3.5	1.2
Department of Health and Human Services (DHHS)	3.6	1.5	1.0	3.5
Department of Energy (DOE)	3.6	1.0	0.6	2.4
Department of Agriculture (USDA)	2.9	15.1	16.9	8.2
National Aeronautics and Space Administration (NASA)	2.9	0.3	0.0	1.2
Department of Commerce (DOC)	2.4	0.5	0.6	0.0

	Percent of FEMP participants (N=413)	Percent of FEMP nonparticipants		
		Overall (N=398)	Uninitiated nonparticipants (N=313)	Initiated nonparticipants (N=85)
Environmental Protection Agency (EPA)	1.5	0.8	1.0	0.0
Department of Justice (DOJ)	1.2	3.8	3.2	5.9
Department of the Treasury (TRSY)	1.2	0.5	0.3	1.2
Social Security Administration (SSA)	1.0	0.5	0.3	1.2
Department of State (DOS)	0.5	0.3	0.3	0.0
Government Printing Office (GPO)	0.5	0.3	0.0	1.2
Department of Labor (DOL)	0.2	1.8	1.9	1.2
Department of Housing and Urban Development (DHUD)	0.2	1.0	1.3	0.0
Architect of the Capitol (AOC)	0.2	0.0	0.0	0.0
Broadcasting Board of Governors (BBG)	0.2	0.0	0.0	0.0
Federal Deposit Insurance Corporation (FDIC)	0.2	0.0	0.0	0.0
Smithsonian Institution (SI)	0.2	0.0	0.0	0.0
Central Intelligence Agency (CIA)	0.0	0.3	0.0	1.2
Consumer Product Safety Commission (CPSC)	0.0	0.3	0.3	0.0
Federal Emergency Management Agency (FEMA)	0.0	0.3	0.3	0.0
General Accounting Office (GAO)	0.0	0.3	0.3	0.0
Federal contractors	15.3	12.1	11.5	14.1

The study sampling strategy was designed to provide a picture of FEMP-related activity government-wide rather than to focus on specific agencies. Since many agencies are represented by a small number of cases, we are unable to provide reliable comparisons between all agencies. To allow for reliable comparisons, agencies were combined into four groups based on agency energy use as identified by FEMP staff. These four groups are:

1. DOD
2. GSA, VA, USPS, and DOE, which we refer to as the *big four* agencies
3. DHHS, DOC, DOI, DOJ, DOT, NASA, and USDA, which we refer to as *second tier* agencies
4. AOC, BBG, CIA, CPSC, DHUD, DOL, DOS, EPA, FDIC, FEMA, GAO, GPO, SI, SSA, and TRSY, which we refer to as *third tier* agencies

The distribution by these four agency groups and federal contractors are presented in Table 4. The largest percentage of surveyed participants (32%) is from the DOD and the smallest percentage is from third tier agencies. The distribution of nonparticipants is similar to participants, except that the largest percentage of surveyed nonparticipants is from second tier agencies. This reflects the high percentage of USDA nonparticipants from the Chicago region. This data shows that the sample was comprised of the federal agencies that use the most energy; and since the sample was based on FEMP participant and contact lists, this indicates that FEMP is reaching and serving the federal agencies that use the most energy.

Table 4 Distribution of survey completions by agency group and federal contractors

Agency	Percent of FEMP participants (N=413)	Percent of FEMP nonparticipants overall (N=398)
DOD	32	28
Big four	22	18
Second tier	25	36
Third tier	6	6
Federal contractors	15	12

Energy project responsibilities

We asked each of the respondents to provide their title and to rate how much of their job involved a set of seven energy project responsibilities. The ratings were on a 1 to 10 scale, where 1 meant no responsibility and 10 meant significant responsibility. The responsibilities and mean ratings are shown in Table 5.

FEMP participants are more likely to be involved in identifying, obtaining approval for, and implementing energy projects. The mean ratings for these responsibilities are between 7.7 and 7.8. FEMP participants are less likely to be involved in procuring,

financing, and building maintenance and operations. The mean ratings for these responsibilities are below 7.0.

Nonparticipants are quite different from participants. Nonparticipants report less responsibility than participants in all areas, except operations and maintenance. On average, the highest rated responsibility for nonparticipants is 7.0, compared to 7.8 for participants. In every instance, the differences are statistically significant. This suggests that nonparticipants have lower levels of energy project responsibilities than participants; thus FEMP is reaching customers with higher levels of energy project responsibilities.

Nonparticipants give the highest average responsibility rating to obtaining the approval for energy projects (7.0), which is the second highest ranked responsibility for participants (7.7). The second highest ranked responsibility among nonparticipants is building maintenance and operations (6.9), which is the lowest rated responsibility for participants (6.1). Thus, it would appear that nonparticipants are somewhat more likely to be responsible for facility operations and maintenance at their facilities, but less responsible for general management.

Table 5 Level of energy project responsibilities

Level of responsibility	FEMP participants		FEMP nonparticipants					
			Overall		Uninitiated nonparticipants		Initiated nonparticipants	
	Mean	N	Mean	N	Mean	N	Mean	N
Identifying energy projects with significant savings potential	7.8	411	6.7	398	6.5	313	7.5	85
Obtaining management approval for energy projects	7.7	408	7.0	391	6.9	307	7.6	84
Implementing energy projects	7.7	410	6.3	392	6.2	307	6.6	85
Planning or designing energy projects	7.1	410	5.2	392	4.9	308	6.2	84
Procuring products or services for energy projects	6.7	408	5.6	392	5.4	307	6.3	85
Obtaining financing for the implementation of energy projects	6.2	408	4.6	392	4.5	307	5.1	85
Maintenance and operations	6.1	411	6.9	394	7.0	309	6.6	85

To better analyze the relation among these responsibilities, respondents were grouped into responsibility categories based on their ratings. To accomplish this, we used a technique called cluster analysis to identify and group people with similar sets of responsibilities. Cluster analysis identifies groups of people or objects that share similar characteristics, such as the set of seven energy project responsibilities addressed in the survey. In cluster analysis, one makes no *a priori* assumptions about the number of groups or about group characteristics. Rather, one chooses the number of groups that

best describe specific group characteristics after examining the results from several analyses using different group sizes. The goal of cluster analysis is to pick the number of groups that best describe the segregation of responsibilities across the population.

After examining the results, we identified four groups with significant differences. We have named these groups as follows:

1. Project expeditors and people with secondary energy project responsibilities
2. Project initiators and planners
3. People with primary energy project responsibilities
4. People with primary operations and maintenance responsibilities

Table 6 shows the average standardized distance (mean z-score) from zero for each responsibility for each group. *People with primary energy project responsibilities* have average z-scores of 0.66 or greater for all responsibilities, except for maintenance and operations. This means that most of this group rates their responsibilities across these areas fairly high, indicating that these are part of their primary responsibilities. *Project expeditors and people with secondary energy project responsibilities*, on the other hand, have z-scores of nearly -1 or less than -1 for all responsibilities. This means that they claim lower levels of responsibility in each of these areas, indicating that these are part of their secondary, not primary, responsibilities. *Project initiators and planners* have positive z-scores for identifying, obtaining approval for, and planning energy projects and z-scores near zero or negative for other responsibilities. *People with primary operations and maintenance responsibilities* have a high positive mean z-score for operations and maintenance responsibilities and negative z-scores for all other responsibilities, particularly for planning and financing.

Table 6 Mean standardized z-scores for types of responsibilities by responsibility group

Type of responsibility	Project expeditors and people with secondary energy project responsibilities	Project initiators and planners	People with primary energy project responsibilities	People with primary operations and maintenance responsibilities
Identifying energy projects with significant savings potential	-1.42	0.16	0.71	-0.19
Obtaining management approval for energy projects	-1.47	0.21	0.66	-0.13
Planning or designing energy projects	-1.16	0.28	0.73	-0.56
Obtaining financing for the implementation of energy projects	-0.98	-0.05	0.90	-0.66
Implementing energy projects	-1.38	-0.02	0.77	-0.16
Procuring products or services for energy projects	-1.14	-0.31	0.80	-0.11
Maintenance and operations	-0.84	-0.96	0.50	0.74
N	148	174	305	184

Table 7 presents the types of responsibilities associated with each of the four energy project responsibility groups. The assignments are based on the analysis presented in Table 6.

Table 7 Types of responsibilities associated with each energy project responsibility group

Type of responsibility	Project expeditors and people with secondary energy project responsibilities	Project initiators and planners	People with primary energy project responsibilities	People with primary operations and maintenance responsibilities
Identifying energy projects with significant savings potential	○	●	●	○
Obtaining management approval for energy projects	○	●	●	○
Planning or designing energy projects	○	●	●	○
Obtaining financing for the implementation of energy projects	○	○	●	○
Implementing energy projects	○	○	●	○
Procuring products or services for energy projects	○	○	●	○
Maintenance and operations	○	○	●	●

A ● signifies a primary responsibility associated with the responsibility group, and a ○ signifies a secondary responsibility associated with the responsibility group.

To better understand the energy project responsibilities associated with surveyed participants and nonparticipants, we looked at the distribution of participants and nonparticipants across the four energy project responsibility groups. These results are presented in Table 8.

The results demonstrate that FEMP participants are more likely to be people with primary energy project responsibilities (47%) and project initiators and planners (27%). Nonparticipants are more likely to be people with primary operations and maintenance responsibilities (32%) and project expeditors and people with secondary energy project responsibilities (24%).

Table 8 Distribution of participants and nonparticipants by responsibility

Responsibility	Percent of respondents		
	Overall (n=811)	FEMP participants (413)	FEMP nonparticipants (398)
Project expeditors and people with secondary energy project responsibilities	18	13	24
Project initiators and planners	22	27	16
People with primary energy project responsibilities	38	47	28
People with primary operations and maintenance responsibilities	23	14	32

We also examined the relationship between the four energy project responsibility groups and job title. The results (not shown) indicate that it is difficult to identify any association between job title and the responsibilities associated with that job title as they relate to their energy responsibilities. This finding indicates that FEMP cannot use the job title of federal employees as an indicator of their energy-related responsibilities. People holding identical job titles have significantly different energy-related responsibilities. Thus, a key finding from this study is that types of responsibilities are a better way to categorize FEMP customers than job title.

Number of facilities directly affected by decisions

We also examined the number of buildings over which participants and nonparticipants have some type of decision-making influence. On average, FEMP participants influence three times as many buildings as nonparticipants (144 vs. 42 buildings, respectively). On average, initiated nonparticipants are responsible for more buildings (71) than uninitiated nonparticipants (33). These results indicate that FEMP is reaching customers that have influence over a large number of buildings.

Table 9 Number of buildings directly affected by decisions

	FEMP participants	FEMP nonparticipants		
		Overall	Uninitiated nonparticipants	Initiated nonparticipants
Mean number of buildings	144	42	34	71
N	343	378	298	80

Summary of findings

- FEMP is reaching and serving the federal agencies that use the most energy. FEMP is also reaching the right people in federal agencies who influence decisions for large numbers of buildings. Compared to nonparticipants, participants have higher levels of energy project responsibilities and are responsible for significantly more buildings.
- Differences between the comprehensiveness of the contact lists obtained from the Chicago region and the other DOE regions demonstrate the importance of building and maintaining good customer contact lists for both program marketing and evaluation.

Recommendations

- Build and maintain good customer contact lists for both program marketing and evaluation. FEMP is essentially in the business of selling energy efficiency services to the federal market. Accordingly, FEMP needs easily accessible information on the federal market in order to serve it effectively. FEMP should consider developing and maintaining a market tracking database similar to those used in the private sector. This database can be used to track customer contact information, marketing contacts made, customer interest and intent to use services, types of services used, and types of technologies installed as a result of using FEMP services.
- Continue successful efforts to target customers responsible for project planning, implementation, and large numbers of facilities.
- Market FEMP services to personnel with operations and maintenance responsibilities to involve more nonparticipants.

2. Awareness and Use of FEMP Services

In this chapter, we explore awareness and use of FEMP services. FEMP survey respondents were asked about their awareness of five general categories of FEMP services: financing services, project-specific technical assistance, technical information, general awareness and outreach, and the FEMP website. If the respondent indicated that they are aware of the FEMP service, they were then asked if they had used the service within the last two years. If they had used the service, they were asked more specific questions about services in that category. They were also asked if they would continue to use the service in the future. If they had not used the service, they were asked if they were likely to use the service in the future.

Awareness of FEMP services

The percent of participants who are aware of the different FEMP programs ranges from 62 to 89 percent (Table 10).¹ FEMP participants are most aware of FEMP technical information services (89%). Participants are almost as aware of FEMP financing services, the FEMP website, FEMP general awareness and outreach services and project-specific technical assistance as they are of FEMP technical information services. Participant awareness for Energy Service Performance Contracting (ESPC) / Super ESPC services (73%) and SAVEnergy Audits (62%) is a bit less but still high. Although most participants are aware of FEMP and the services it offers, there are small percentages of participants who are not aware of one or another of FEMP services.

While awareness of FEMP services is high among participants, awareness is somewhat low among nonparticipants.² Only 34 percent of uninitiated nonparticipants are aware of FEMP in general. When including initiated nonparticipants, who by definition are aware of FEMP in general, 48 percent of nonparticipants overall are aware of FEMP in general. Nonparticipants overall are most aware of FEMP financing services (24%) and least aware of SAVEnergy Audits (9%).

If we examine the two types of nonparticipants, initiated nonparticipants are much more aware of specific FEMP services than uninitiated nonparticipants, which is expected given that initiated nonparticipants are aware of FEMP in general. Not quite 60 percent of initiated nonparticipants have heard of financing services and between 48 and 57 percent are aware of technical information, project-specific technical assistance, and the FEMP website. This contrasts with uninitiated nonparticipants, where roughly a third have heard of FEMP but no more than 15 percent are aware of any of FEMP program

¹ As discussed in Chapter 1, survey respondents are classified as FEMP participants if they have used at least one FEMP service other than the FEMP website within the last 2 years. Because they have to be aware to participate, all participants are assumed to be aware of FEMP. However, not all participants are necessarily aware of specific FEMP services.

² Nonparticipants are classified into 2 groups: uninitiated nonparticipants and initiated nonparticipants. Please refer to Chapter 1 for the definitions of these classifications.

areas. Keeping in mind that uninitiated nonparticipants represent about 80 percent of all nonparticipants, it is clear that information about FEMP programs is not reaching these nonparticipants. In other words, there is a communication gap with nonparticipants and the reason for nonparticipation is likely to be associated with their lack of knowledge about the programs. This provides FEMP an opportunity to increase use of its services through awareness and outreach efforts.

Table 10 Awareness of FEMP – in general and by service

Service	Percent of FEMP participants (N=413)	Percent of FEMP nonparticipants		
		Overall (N=398)	Uninitiated nonparticipants (N=313)	Initiated nonparticipants (N=85)
FEMP in general	100	48	34	100
Financing services	87	24	15	58
ESPC/Super-ESPC	73	13	9	31
SAVEnergy Audits	62	9	7	22
Project-specific technical assistance	80	22	15	49
Technical information	89	20	12	48
General awareness and outreach efforts	81	14	10	31
Website	83	18	8	57

We also looked at differences in nonparticipant awareness of FEMP in general by region, responsibility, agency and federal contractors.³ These results are presented below in Table 11, Table 12, and Table 13.

There is some regional variation in nonparticipant awareness of FEMP programs. Nonparticipants from the Atlanta, Boston, and Philadelphia regions are more likely to be aware of FEMP (65% or more aware) than those from Seattle, Denver, or Chicago (58% or less). About half of the uninitiated nonparticipants are aware, except for the Denver and Chicago regions where a quarter to a third of the uninitiated nonparticipants are aware.

³ Refer to Chapter 1 for descriptions of these segments.

Table 11 Awareness of FEMP in general by region

Region	Percent of FEMP nonparticipants					
	Overall		Uninitiated nonparticipants		Initiated nonparticipants	
	Percent	N	Percent	N	Percent	N
Boston	65	17	46	11	100	6
Philadelphia	65	54	46	35	100	19
Atlanta	69	32	47	19	100	13
Chicago	38	223	28	192	100	31
Denver	54	39	33	27	100	12
Seattle	58	33	52	29	100	4

Awareness also varies with responsibility among nonparticipants. Project initiators and planners and people with primary energy project responsibilities are from 8 to 21 percent more likely to be aware of FEMP than are project expeditors and people with secondary energy project responsibilities and people with primary operations and maintenance responsibilities.

Table 12 Awareness of FEMP in general by responsibility

Responsibility	Percent of FEMP nonparticipants					
	Overall		Uninitiated nonparticipants		Initiated nonparticipants	
	Percent	N	Percent	N	Percent	N
Project expeditors and people with secondary energy project responsibilities	39	95	30	83	100	12
Project initiators and planners	60	62	40	42	100	20
People with primary energy project responsibilities	53	113	38	86	100	27
People with primary operations and maintenance responsibilities	45	128	31	102	100	16

When we examine awareness of FEMP by agency, we find that nonparticipants from the big four agencies are the most aware of FEMP and nonparticipants in the second tier agencies are the least aware. The higher levels of awareness among nonparticipants from the big four agencies may stem from the fact that DOE, which manages FEMP, is one of the big four agencies.

Nonparticipants who are federal contractors tend to be less aware of FEMP in general than nonparticipants in the big four agencies and more aware than nonparticipants in the DOD and the second and third tier agencies.

Table 13 Awareness of FEMP in general by agency and federal contractors

	Percent of FEMP nonparticipants					
	Overall		Uninitiated nonparticipants		Initiated nonparticipants	
	Percent	N	Percent	N	Percent	N
Agency						
DOD	44	109	25	81	100	28
Big four	63	73	53	57	100	16
Second tier	42	144	30	120	100	24
Third tier	46	24	32	19	100	5
Federal contractors	56	48	42	36	100	12

Use of FEMP services

FEMP participants were asked about their use of financing services, project-specific technical assistance, technical information, and general awareness and outreach efforts. Results are presented in Table 14. We also asked both participants and nonparticipants about their use of the FEMP website.⁴ These results are presented later in Table 20.

Participants reported that they use FEMP technical information (71%) and general awareness and outreach efforts (65%) most frequently, followed by financing services and project-related technical assistance.

Table 14 Participant use of FEMP services

Service	Percent of FEMP participants (N=413)
Financing services	36
Project-specific technical assistance	32
Technical information	71
General awareness and outreach efforts	65

⁴ In defining participants and nonparticipants, we considered the FEMP website to be a general resource and did not consider its use to be an indicator of FEMP participation.

To understand these results better, we compared use of FEMP services by region, responsibility, agency, and federal contractors.⁵ These results are presented in Table 15.

Table 15 Participant use of FEMP services by region, responsibility, agency, and federal contractors

Segment	Percent of participants who have used:					N
	Financing services	Project-specific technical assistance	Technical information	General awareness and outreach efforts	Website	
Overall	36	32	71	65	71	413
Region						
Boston	52	44	83	57	65	23
Philadelphia	28	36	78	77	82	108
Atlanta	35	20	70	75	73	60
Chicago	40	31	51	59	57	75
Denver	33	35	82	53	69	72
Seattle	43	28	69	63	72	75
Responsibility						
Project expeditors and people with secondary energy project responsibilities	25	17	77	66	74	53
Project initiators and planners	38	35	74	71	84	112
People with primary energy project responsibilities	39	34	70	66	67	192
People with primary operations and maintenance responsibilities	34	30	64	54	59	56
Agency						
DOD	36	21	68	71	74	132
Big four	37	41	71	59	66	91
Second tier	39	40	69	68	67	102
Third tier	28	56	80	60	84	25
Federal contractors	33	18	78	62	78	63

For each of the five general categories of FEMP services they have used, participants were asked about the specific types of services used. These results for each of the five general categories of FEMP services are presented below.

⁵ Refer to Chapter 1 for descriptions of these segments.

Financing services

About a third of the participants say that they use ESPC/Super-ESPC (Table 16). Nine percent mentioned utility financing or direct funding. Only 3 percent of the respondents mention other types of financing assistance.

Table 16 Use of FEMP financing services

Financing service	Percent of FEMP participants (N=413)
ESPC/Super-ESPC	29
Utility financing	9
Direct funding	9
Other financing	3

Adds to more than 36% of participants who use financing services (see Table 14) due to participants who use multiple financing services

Project-specific technical assistance

SAVEnergy Audits are the most common form of technical assistance used by FEMP participants (Table 17).

Table 17 Use of project-specific technical assistance

Project-specific technical assistance	Percent of FEMP participants (N=413)
SAVEnergy Audits	22
Design assistance	13
Other assistance	7

Adds to more than 32% of participants who use project-specific technical assistance (see Table 14) due to participants who use multiple project-specific technical assistance services

Technical information

FEMP participants report (Table 18) that publications (60%) are the most common way in which they use FEMP technical information services. About half use training and workshops and a third software tools.

Table 18 Use of technical information

Technical information	Percent of FEMP participants (N=413)
Publications	60
Training or workshops	47
Software tools	35
Other information	22

Adds to more than 71% of participants who use technical information (see Table 14) due to participants who use multiple technical information services

General awareness and outreach efforts

Participants report (Table 19) that *FEMP Focus* (48%) and *You Have the Power Campaign* materials (44%) are the most common ways in which they use general awareness and outreach efforts. The next most frequently mentioned items are policy guidance and the annual energy conferences. Just under a third of the participants mention the awards programs.

Table 19 Use of FEMP general awareness and outreach efforts

General awareness and outreach efforts	Percent of FEMP participants (N=413)
<i>FEMP Focus</i>	48
<i>You Have the Power Campaign</i> Materials	44
Policy guidance	37
Annual energy conferences	34
Award programs	30
Working groups	22
Other efforts	11

Adds to more than 65% of participants who use general awareness and outreach efforts (see Table 14) due to participants who use multiple general awareness and outreach efforts

FEMP website

Seventy-one percent of FEMP participants report (Table 20) that they have used the FEMP website. As expected, use of the FEMP website is much lower among nonparticipants. Only 12 percent of nonparticipants overall have used the FEMP website. If we examine the two types of nonparticipants, initiated nonparticipants are much more likely to have used the FEMP website (57%) than uninitiated nonparticipants (8%), which is expected given how initiated nonparticipants are defined.

If we look at the use of the FEMP website among those who are aware of the FEMP website (ratio of FEMP website use to awareness in Table 20), we find that 86 percent of participants who are aware of the FEMP website also have used the FEMP website. Only 50 percent of the uninitiated nonparticipants who are aware of the FEMP website have used the FEMP website.

Table 20 Use of the FEMP website

	Percent of FEMP participants (N=413)	Percent of FEMP nonparticipants		
		Overall (N=398)	Uninitiated nonparticipants (N=313)	Initiated nonparticipants (N=85)
Used the FEMP website	71	12	4	41
Aware of the FEMP website	83	18	8	57
Ratio of FEMP website use to awareness	86	67	50	72

In defining participants and nonparticipants, we considered the FEMP website to be a general resource and did not consider its use to be an indicator of FEMP participation.

We also assessed how participants and nonparticipants use the FEMP website (Table 21). Participants most commonly retrieve technical information (86%), followed by general awareness and outreach information and information related to project-specific technical assistance. They are least likely to retrieve information about financing services (30%). We also found that a very high percentage of nonparticipants (65%) are retrieving technical information from the FEMP website. About a third of nonparticipants retrieve general awareness information and less than 10 percent of nonparticipants obtain information about financing.

These findings suggest that the FEMP website is a good way to disseminate technical information, and to a certain extent, general awareness and project-specific information. As yet, the FEMP website is not widely used to retrieve financing information. This may reflect a lack of interest in this material, a lack of awareness that such information is available, or the dissemination of financing information through other channels, such as word-of-mouth or contractors.

Table 21 Types of information obtained by users of the FEMP website

Type of information obtained	Percent of FEMP participants who have used website (N=295)	Percent of FEMP nonparticipants who have used website		
		Overall (N=48)	Uninitiated nonparticipants (N=35)	Initiated nonparticipants (N=13)
Technical information	86	65	77	60
General awareness and outreach information	56	33	46	29
Project-specific technical assistance	51	23	15	26
Financing services	30	8	8	9

Adds to more than 100% due to users obtaining multiple types of information

How participants use FEMP services

An important issue is how people use FEMP services. The question is one of whether many participants use a few services or a few participants use many services. Figure 1 is a tree diagram showing how participants use the following five FEMP services: the website, technical information, general awareness and outreach efforts, financing services, and project-specific technical assistance. The tree traces usage from the most commonly used services to the least commonly used. If most customers use a few services and there is no relationship between using one service and another, the branches of the tree will appear thin and spread out. If a few people use many services and there is a linkage between the services that are used, then the tree will have a few thick branches and the rest are likely to be thin. By following the thickness of the branches through the tree structure, one can see how participants use multiple FEMP services.

We started the tree with FEMP website use because users of the FEMP website are the most numerous. We know that 71 percent of all participants use the website. Normally, we would place the branch of the tree for those who do not use the website to the right of those who do. However, because of the width of the tree, we have stacked the two branches. Those who do not use the website are 29 percent of the participants.

The tree diagram (presented on the following page) and Table 22 demonstrate that most FEMP participants use multiple services. Sixteen percent of participants report using only one service. Fifty-three percent of the participants report using three or more services.

Table 22 Participant use of FEMP services

Number of services used	Percent of participants (N=413)
5	8
4	16
3	29
2	31
1	16

The most commonly used combination of services is the website, technical information, and general awareness and outreach efforts. Fifty-eight percent of participants use the website and technical information. Forty-two percent use the website, technical information, and general awareness services.

If we continue down the left-hand side of the participant tree, we find that more than half of those who use project-specific technical assistance and / or financing services also use the website, technical information, and general awareness and outreach efforts. If we examine the remainder of the tree, we see only small percentages of participants (1 – 3%) use financing services and project-specific technical assistance in combination with other

services. What these data demonstrate is that the various FEMP services reinforce each other and that FEMP customers, are on average, strong multiple service users.

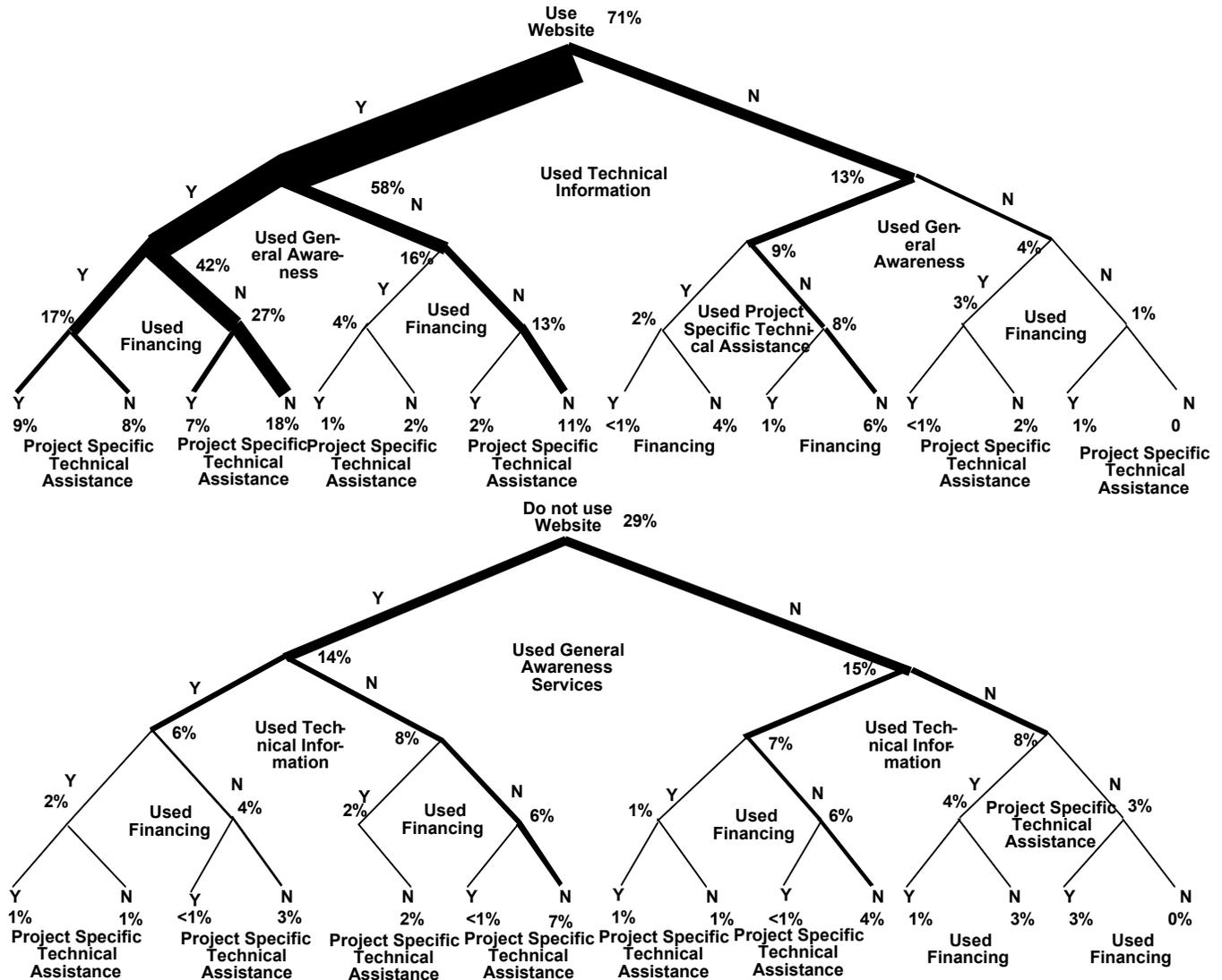


Figure 1 Tree diagram of use of FEMP services

Likelihood of continued and potential use of FEMP services

In addition to analyzing how FEMP services are used, we also assessed future interest and use in the following general categories of FEMP services: financing services, project-specific technical assistance, technical information, and general awareness and outreach efforts. For each of the services, we asked those who have used the service to rate their likelihood of continued use, and we asked those who have not used the service to rate their likelihood of potential use. The ratings are on a 1 to 10 scale, where 1 means very

unlikely and 10 means very likely. Results for each of the program areas are presented below.

Financing services

Eighty-one percent of participants (Table 23) who have used FEMP financing services rate their likelihood to continue using at 8 or higher, with 44 percent giving a rating of 10. On average, financing service participants rate their likelihood to continue participation at 8.3. The results for financing service nonparticipants are much different. For example, only 24 percent of aware financing service nonparticipants and 22 percent of unaware financing service nonparticipants rate their likelihood of potential use at 8 or higher, and aware and unaware financing service nonparticipants, on average, rate their likelihood of potential use at 4.4 and 4.2, respectively. These results suggest that once a customer uses FEMP financing services, the likelihood of continued use is relatively high.

Table 23 Likelihood of continued and potential use of FEMP financing services

Likelihood of continued and potential use	Percent of FEMP financing service participants (N=104)	Percent of FEMP financing service nonparticipants	
		Aware of financing services (N=292)	Unaware of financing services (N=114)
10	44	13	9
9	13	2	2
8	24	9	11
7	5	6	6
6	4	3	4
5	4	15	15
4	0	3	3
3	0	9	6
2	0	8	11
1	7	33	34
Mean	8.3	4.4	4.2

We asked those who gave a rating of 7 or less the reasons for their rating. A summary of the results for financing service participants and nonparticipants are presented in Table 24 and Table 25, respectively. More detailed responses are presented in Appendix B.

Of the 20 financing service participants (20%) who gave a rating of 7 or less, issues regarding inadequate funding and use of other financing are cited most frequently.

Table 24 Reasons for rating likelihood to continue using FEMP financing services at 7 or less among participants

Reason	Percent of FEMP financing service participants who gave a rating of 7 or less (N=20)
Funding inadequate or not available for projects	15
Will fund in-house or use other financing	15
We will only do financing where vendor pays so we have net positive cash flow	5
Facilities are too small	5
FEMP financing not tailored on our facility specific needs	5
Low payback	5
We already have most needs met	5
Other	20
Don't know	25

Of the 225 aware financing service nonparticipants (77%) who gave a rating of 7 or less, issues regarding use of other financing are cited most frequently. Of the 90 unaware financing service nonparticipants (79%) who gave a rating of 7 or less, issues regarding not knowing enough about FEMP financing and use of other financing are cited most frequently.

Table 25 Reasons for rating likelihood to use FEMP financing services at 7 or less among nonparticipants

Reason	Percent of FEMP financing service nonparticipants who gave a rating of 7 or less	
	Aware of financing services (N=225)	Unaware of financing services (N=90)
Finance in-house / use other financing	27	17
Not involved with decision making	10	16
No need / do not use financing	9	7
Facilities are too small	5	2
Rules, regulations, and policies restrict use of FEMP financing	5	1
Funding inadequate /costs too much	5	0
Don't know enough about it	5	27
Low payback	2	2
Other	33	27
Don't know	4	2

Adds to more than 100% due to multiple responses

Project-specific technical assistance

Seventy-six percent of participants (Table 26) who have used FEMP project-specific technical assistance rate their likelihood to continue using at 8 or higher, with 38 percent giving a rating of 10. On average, project-specific technical assistance participants rate their likelihood to continue participation at 8.1. The results for project-specific technical assistance nonparticipants are much different. For example, only 30 percent of aware project-specific technical assistance nonparticipants and 39 percent of unaware project-specific technical assistance nonparticipants rate their likelihood of potential use at 8 or higher, and aware and unaware project-specific technical assistance nonparticipants, on average, rate their likelihood of potential use at 5.1 and 5.5, respectively. As with FEMP financing, these results suggest that once a customer uses FEMP project-specific technical assistance, the likelihood of continued use is relatively high.

Table 26 Likelihood of continued and potential use of FEMP project-specific technical assistance

Likelihood of continued and potential use	Percent of FEMP project-specific technical assistance participants (N=109)	Percent of FEMP project-specific technical assistance nonparticipants	
		Aware of project-specific technical assistance (N=264)	Unaware of project-specific technical assistance (N=137)
10	38	10	13
9	18	4	5
8	20	16	21
7	6	8	7
6	2	5	2
5	7	20	15
4	0	3	2
3	1	10	10
2	2	5	8
1	6	20	18
Mean	8.1	5.1	5.5

We asked those who gave a rating of 7 or less the reasons for their rating. A summary of the results for project-specific technical assistance participants and nonparticipants are presented in Table 27 and Table 28, respectively. More detailed responses are presented in Appendix B.

Of the 26 project-specific technical assistance participants (24%) who gave a rating of 7 or less, issues regarding already receiving project-specific technical assistance from FEMP and not knowing enough about FEMP project-specific technical assistance are cited most frequently.

Table 27 Reasons for rating likelihood to continue using FEMP project-related assistance at 7 or less among participants

Reasons	Percent of FEMP project-specific technical assistance participants who gave a rating of 7 or less (N=26)
We do not need more assistance from FEMP / already received assistance from FEMP	23
Don't know enough about it	15
It is cheaper to get assistance in-house	8
Facilities are too small	4
FEMP procedures are too rigid	4
Information is not up-to-date	4
Payback is too long on projects	4
We do not have the budget to pay for assistance	4
We do not need FEMP technical assistance	4
We have sought project assistance elsewhere	4
Other	24
Don't know	4

Of the 187 aware project-specific technical assistance nonparticipants (71%) who gave a rating of 7 or less, issues regarding using in-house staff or others for project-specific technical assistance are cited most frequently. Of the 83 unaware project-specific technical assistance nonparticipants (62%) who gave a rating of 7 or less, issues regarding using in-house staff or others for project-specific technical assistance and not knowing enough about FEMP project-specific technical assistance are cited most frequently.

Table 28 Reasons for rating likelihood to use FEMP project-specific technical assistance at 7 or less among nonparticipants

Reason	Percent of FEMP project-specific technical assistance nonparticipants who gave a rating of 7 or less	
	Aware of project-specific technical assistance (N=187)	Unaware of project-specific technical assistance (N=83)
We use in-house staff or others for project assistance	30	20
Do not need project assistance at this time	14	10
We may use FEMP project assistance in the future	9	10
Do not have money, financing or budget for this	5	1
Decision is made elsewhere	5	12
Don't know enough about it	4	19
Other	26	18
Don't know	6	7

Technical information

Ninety-two percent of participants (Table 29) who have used FEMP technical information rate their likelihood to continue using at 8 or higher, with 53 percent giving a rating of 10. On average, technical information participants rate their likelihood to continue participation at 9.0. The results for technical information nonparticipants are somewhat different. For example, 43 percent of aware technical information nonparticipants and 52 percent of unaware technical information nonparticipants rate their likelihood of potential use at 8 or higher, and aware and unaware technical information nonparticipants, on average, rate their likelihood of potential use at 5.9 and 6.3, respectively. Compared to the ratings for FEMP financing and FEMP project-specific technical assistance, the ratings given by technical information participants and nonparticipants are higher. These results suggest that once a customer uses FEMP technical information, the likelihood of continued use is relatively high. These results also show that nonparticipants have a higher interest in the use of FEMP technical information than in the use of FEMP financing and FEMP project-specific technical assistance.

Table 29 Likelihood of continued and potential use of FEMP technical information

Likelihood of continued and potential use	Percent of FEMP technical information participants (N=290)	Percent of FEMP technical information nonparticipants	
		Aware of technical information (N=148)	Unaware of technical information (N=106)
10	53	16	15
9	16	5	6
8	23	22	31
7	3	6	4
6	1	5	7
5	2	16	14
4	0	3	1
3	0	5	5
2	1	4	4
1	1	18	14
Mean	9.0	5.9	6.3

We asked those who gave a rating of 7 or less the reasons for their rating. A summary of the results for technical information participants and nonparticipants are presented in Table 30 and Table 31, respectively. More detailed responses are presented in Appendix B.

Of the 23 technical information participants (8%) who gave a rating of 7 or less, over half say that FEMP technical information is good or that they may use FEMP technical information again in the future. Many of these participants gave a rating of 7, which is a borderline rating that in some cases, like these, indicate a positive connotation rather than a negative one.

Table 30 Reasons for rating likelihood to continue using FEMP technical information at 7 or less among participants

Reasons	Percent of FEMP technical information participants who gave a rating of 7 or less (N=23)
FEMP technical information is good / may use FEMP technical information again in the future	52
I have other sources of technical information	13
No need for technical information	4
Not enough topics covered by information	4
Technical information was out-of-date	4
We will not use information in the future	4
Don't know enough about it	4
Don't know	13

Of the 85 aware technical information nonparticipants (57%) who gave a rating of 7 or less, issues regarding FEMP technical information not meeting needs are cited most frequently. Of the 51 unaware technical information nonparticipants (49%) who gave a rating of 7 or less, issues regarding not knowing enough about FEMP technical information are cited most frequently.

Table 31 Reasons for rating likelihood to use FEMP technical information at 7 or less among nonparticipants

Reason	Percent of FEMP technical information nonparticipants who gave a rating of 7 or less	
	Aware of technical information (N=85)	Unaware of technical information (N=51)
Technical information is not applicable to our needs	14	10
We may use FEMP technical information in the future	14	12
We use in-house or other resources for technical information	10	8
Don't know enough about it	8	37
Decision is made elsewhere	7	12
Do not have money or budgets for technical assistance	6	0
Other	37	20
Don't know	6	2

General awareness and outreach efforts

Ninety-four percent of participants (Table 32) who have used FEMP general awareness and outreach efforts rate their likelihood to continue using at 8 or higher, with 55 percent

giving a rating of 10. On average, general awareness and outreach effort participants rate their likelihood to continue participation at 9.1. The results for general awareness and outreach effort nonparticipants are somewhat different. For example, only 39 percent of aware general awareness and outreach effort nonparticipants and 46 percent of unaware general awareness and outreach effort nonparticipants rate their likelihood of potential use at 8 or higher, and aware and unaware general awareness and outreach effort nonparticipants, on average, rate their likelihood of potential use at 5.9 and 6.0, respectively. Compared to the ratings for FEMP financing and FEMP project-specific technical assistance, the ratings given by general awareness and outreach effort participants and nonparticipants are higher. These results suggest that once a customer uses FEMP general awareness and outreach efforts, the likelihood of continued use is relatively high. These results also show that nonparticipants have a higher interest in the use of FEMP general awareness and outreach efforts than in the use of FEMP financing and FEMP project-specific technical assistance.

Table 32 Likelihood of continued and potential use of FEMP general awareness and outreach efforts

Likelihood of continued and potential use	Percent of FEMP general awareness and outreach effort participants (N=269)	Percent of FEMP general awareness and outreach effort nonparticipants	
		Aware of general awareness and outreach efforts (N=116)	Unaware of general awareness and outreach efforts (N=148)
10	55	16	15
9	16	6	7
8	23	17	24
7	2	9	8
6	1	6	1
5	1	16	16
4	0	6	3
3	0	3	3
2	1	6	7
1	1	16	16
Mean	9.1	5.9	6.0

We asked those who gave a rating of 7 or less the reasons for their rating. A summary of the results for general awareness and outreach effort participants and nonparticipants are presented in Table 33 and Table 34, respectively. More detailed responses are presented in Appendix B.

Of the 16 general awareness and outreach effort participants (6%) who gave a rating of 7 or less, a third say that FEMP awareness and outreach efforts are good or that they may use FEMP awareness and outreach efforts again in the future. As with technical

information participants, many of these participants gave a rating of 7, which is a borderline rating that in some cases, like these, indicate a positive connotation rather than a negative one.

Table 33 Reasons for rating likelihood to continue using FEMP general awareness and outreach efforts at 7 or less among participants

Reasons	Percent of FEMP general awareness and outreach effort participants who gave a rating of 7 or less (N=16)
FEMP awareness and outreach is good / may use again in the future	32
FEMP technical information is not useful	12
Internal organizational issues limit our use of FEMP	6
Rules limit us	6
Other	31
Don't know	13

Of the 71 aware general awareness and outreach effort nonparticipants (62%) who gave a rating of 7 or less, issues regarding lack of need and lack of resources are cited most frequently. Of the 80 unaware general awareness and outreach effort nonparticipants (54%) who gave a rating of 7 or less, issues regarding not knowing enough about FEMP general awareness and outreach efforts are cited most frequently.

Table 34 Reasons for rating likelihood to use FEMP general awareness and outreach efforts at 7 or less among nonparticipants

Reason	Percent of FEMP general awareness and outreach effort nonparticipants who gave a rating of 7 or less	
	Aware of general awareness and outreach efforts (N=71)	Unaware of general awareness and outreach efforts (N=80)
No need / low priority	17	14
Do not have enough staff/money/resources for it	13	4
We may use in the future	13	10
Don't know enough about it	11	36
Decision is made elsewhere	6	8
Use other sources of assistance/info	5	4
Other	30	14
Don't know	4	10

Use of services from sources not affiliated with FEMP

One explanation for respondents not using FEMP services or not planning to use FEMP services is that they may be using services from other sources. To address this issue, we asked both participants and nonparticipants about their use of general categories of FEMP services (financing services, project-specific technical assistance, technical information, and general awareness and outreach efforts) from sources not affiliated with FEMP. These results are presented in Table 35.

FEMP financing service participants are more likely than nonparticipants to have used financing services from sources not affiliated with FEMP (49% vs. 42%). This pattern holds for project-specific technical assistance, technical information, and general awareness and outreach efforts. In addition, financing service nonparticipants who are aware of FEMP financing services are more likely than unaware nonparticipants to have used financing services from sources not affiliated with FEMP (42% vs. 28%). This pattern holds for project-specific technical assistance and technical information, but not for general awareness and outreach efforts.

Comparing across services, FEMP technical information participants are most likely to use technical information from sources not affiliated with FEMP (82%), while FEMP financing service participants are least likely to use financing service from sources not affiliated with FEMP (49%). The same trend holds for nonparticipants.

We conclude three things from these data.

1. FEMP participants supplement FEMP services with services from other sources.
2. FEMP participants in a service are more likely to also use the service outside of FEMP than nonparticipants in a service.
3. These data neither support nor refute the idea that the use of non-FEMP services is a reason why nonparticipants do not use FEMP services. Use of one does not seem to preclude the use of the other.

Table 35 Use of services from sources not affiliated with FEMP

FEMP service	Participant in the FEMP service		Nonparticipant in the FEMP service			
	Percent who have also used the service from sources not affiliated with FEMP	N	Aware of the service		Unaware of the service	
			Percent who have used the service from sources not affiliated with FEMP	N	Percent who have used the service from sources not affiliated with FEMP	N
Financing services	49	144	42	297	28	138
Project-specific technical assistance	58	127	57	283	48	169
Technical information	82	294	57	154	49	131
General awareness and outreach efforts	67	270	42	123	45	186

We then asked aware nonparticipants who used one or more of the services from sources not affiliated with FEMP the reasons why they decided not to use the service(s) from FEMP. A summary of these results is presented in Table 36 through Table 39. More detailed responses are presented in Appendix B.

Of the 125 aware financing service nonparticipants (42%) who have used financing services from sources not affiliated with FEMP, issues regarding already using in-house financing or financing from other sources are mentioned most often.

Table 36 Reasons for not using financing services from FEMP

Reason	Percent of aware financing service nonparticipants who have used financing services from sources not affiliated with FEMP (N=125)
Already use in-house financing or financing from other sources	41
Don't know enough about it	9
Decision is made elsewhere	6
Our project did or would not qualify	6
FEMP is unavailable to us	5
Other service is more economical	4
Other	19
Don't know	10

Of the 160 aware project-specific technical assistance nonparticipants (57%) who have used project-specific technical assistance from sources not affiliated with FEMP, issues regarding already using in-house assistance or other sources of assistance are cited most frequently.

Table 37 Reasons for not using project-specific technical assistance from FEMP

Reason	Percent of aware project-specific technical assistance nonparticipants who have used project-specific technical assistance from sources not affiliated with FEMP (N=160)
Already use in-house staff or other sources for assistance	44
Don't know enough about it	12
Decision is made elsewhere	5
Other service is cheaper or free	3
Other service was local	3
Do not have enough funding for it	3
We have pre-existing contracts or procedures to follow	3
Other	20
Don't know	7

Of the 87 aware technical information nonparticipants (57%) who have used technical information from sources not affiliated with FEMP, issues regarding already using other sources of information and not knowing enough about FEMP technical information are cited most frequently.

Table 38 Reasons for not using technical information from FEMP

Reason	Percent of aware technical information nonparticipants who have used technical information from sources not affiliated with FEMP (N=87)
Already use other sources of information	26
Don't know enough about it	22
Other sources are cheaper or easier to use	12
Decision is made elsewhere	6
No need for technical information	3
Other	24
Don't know	4

Of the 51 aware general awareness and outreach efforts nonparticipants (42%) who have used general awareness and outreach efforts from sources not affiliated with FEMP, issues regarding already using other sources of information and not knowing enough about FEMP general awareness and outreach efforts are mentioned most often.

Table 39 Reasons for not using general awareness and outreach efforts from FEMP

Reason	Percent of aware awareness and outreach effort nonparticipants who have used general awareness and outreach efforts from sources not affiliated with FEMP (N=51)
Already use in-house or other sources of awareness and outreach information	32
Don't know enough about it	22
Decision made elsewhere	8
Other	36
Don't know	4

Summary of findings

- At least 80 percent of participants are aware of one or more of the five categories of FEMP services addressed by the survey.
- Participants are less aware of ESPCs and SAVEnergy Audits than other categories of services.
- About half of FEMP nonparticipants are aware of FEMP. Also nonparticipants have somewhat low levels of awareness of the range of services offered by FEMP, particularly ESPCs and SAVEnergy Audits.
- In general, FEMP participants are most likely to use the FEMP website, technical information services, and general awareness services. They are least likely to use project-specific technical assistance and financing services.
- Publications and training are the most frequently cited technical information services used by participants. *FEMP Focus* and *You Have the Power Campaign* materials are the most frequently used general awareness efforts.
- ESPC and SAVEnergy Audits dominate the use of financing services and project-specific technical assistance, respectively. However, about 10 percent of respondents reported using utility financing.

- When we examine the patterns of services that are used, we find that most participants use multiple FEMP services. The website, technical information and the general awareness activities are most likely to be used in conjunction with other services. Participants using ESPC and SAVEnergy Audit services are highly likely to have used a broad range of services including the FEMP website.
- Depending on the service, between 75 to 90 percent of participants are very likely to continue using FEMP services.
- Continued and potential use of FEMP services is highest among the technical information services and general awareness and outreach efforts. It is lowest for the more project-specific services, such as financing services and project-specific technical assistance.
- When nonparticipants were asked if they would use FEMP services in the future, as many as half indicated that they are interested, indicating a sizable audience of nonparticipants that are interested in participation.
- Participants are also much more likely to use non-FEMP energy services than nonparticipants. This indicates that participants are supplementing FEMP services with other services. In addition, nonparticipants use fewer energy services in general.

Recommendations

- Continue successful efforts to maintain awareness and use of FEMP services. Because most participants use multiple FEMP services, these efforts should focus on the use of cross-program marketing to increase awareness and use of FEMP services, particularly the ESPC and the SAVEnergy Audit programs. In addition, these efforts should include more extensive customer follow-up contact, as this contact will yield positive results given that once a customer uses FEMP services the likelihood of continued use is relatively high.
- Develop a strategy to target the sizable audience of nonparticipants that are interested in participation. Nonparticipants have a higher interest in the use of FEMP technical information services and FEMP general awareness and outreach efforts than in the use of FEMP financing and FEMP project-specific technical assistance. Therefore, the strategy should emphasize the use of technical information services and general awareness and outreach efforts as an entrée into the use of more project-focused FEMP services among nonparticipants.

3. Contact and Satisfaction with FEMP

Contacts with the greatest influence on decision to use FEMP services

FEMP participants are influenced to use FEMP services in a variety of ways. These include contacts with FEMP staff (headquarters and region offices), contacts associated with but not part of FEMP (ESPC / SAVEnergy Audit contractors and national laboratories) and contacts not associated with FEMP (colleagues / peers and other personal contacts). To assess the influence of these various types of contacts, participants were asked to identify the type of contact that had the greatest influence on their decision to use FEMP services (Table 40). Colleagues and peers have the greatest influence on the decision to use FEMP services (24%). The next greatest influence on customer decisions is ESPC / SAVEnergy Audit contractors (19%). Seventeen percent of FEMP participants said that the national laboratories have the greatest influence, while FEMP headquarters, regional offices, and other personal contacts each were cited as the greatest influence by 12 percent of participants.

These results indicate that contacts not associated with FEMP have a strong influence on the decision to use FEMP services (the greatest influence among 36 percent of participants when combining colleagues / peers and other personal contacts). This provides FEMP an opportunity to increase awareness and use of its services through referral efforts. These efforts have the potential to be successful given the high levels of satisfaction that participants have with FEMP. Satisfaction results are presented later in this chapter.

Table 40 Type of contact with greatest influence on decision to use FEMP services

Contact	Percent of FEMP participants (N=354)
Colleagues or peers	24
ESPC or SAVEnergy Audit contractors	19
National laboratories	17
FEMP headquarters	12
Regional offices	12
Other personal contacts	12
Other	4

Among the 15 participants (4%) who reported other contacts as having the greatest impact on the choice to use FEMP services (Table 41), the FEMP website and other offices within the organization were mentioned most frequently.

Table 41 Other contacts with greatest influence on decision to use FEMP services

Contact	Percent of FEMP participants who reported an other contact (N=15)
FEMP website	33
Other offices within our organization	20
Other past contacts and usage of FEMP	7
PG&E	7
Publications	7
Training workshop	7
Other	28

Adds to more than 100% due to multiple responses

To understand these results better, we looked at the type of contact with the greatest influence by region.⁶ These results are presented in Table 42. Colleagues and peers have more influence in the Chicago region. ESPC and SAVEnergy Audit contractors have more influence in the Atlanta, Chicago, and Denver regions. National laboratories have more influence in the Denver and Seattle regions. FEMP headquarters have more influence in the Philadelphia region. Regional offices have more influence in the Boston region.

Table 42 Type of contact with greatest influence on decision to use FEMP services by region

Region	Percent of FEMP participants						Other
	Colleagues or peers	ESPC or SAVEnergy Audit contractors	National laboratories	FEMP headquarters	Regional offices	Other personal contacts	
Overall (N=354)	23	19	17	12	12	12	4
Region							
Boston (N=22)	9	14	18	5	46	9	0
Philadelphia (N=96)	25	12	19	24	6	8	6
Atlanta (N=54)	17	28	13	11	7	22	2
Chicago (N=56)	34	27	4	9	11	13	4
Denver (N=62)	21	26	24	2	10	13	5
Seattle (N=64)	23	13	23	8	17	11	5

⁶ Refer to Chapter 1 for descriptions of these segments.

Type of contact with whom communicate most

In addition to assessing the influence that various types of contacts have in the participation decision, we assessed the types of contacts that participants communicate with most often when dealing with FEMP. These results are presented in Table 43.

Twenty-six percent of participants communicate most with national laboratories when dealing with FEMP, 23 percent communicate most with FEMP headquarters, 22 percent communicate most with FEMP regional offices, 20 percent communicate most with ESPC or SAVEnergy Audit contractors, and 9 percent communicate most with other contacts.

Table 43 Type of contact with whom communicate most when dealing with FEMP

Contact	Percent of FEMP participants (N=329)
National laboratories	26
FEMP headquarters	23
Regional offices	22
ESPC or SAVEnergy Audit contractors	20
Other	9

Among the 29 participants (9%) who reported other contacts (Table 44), the FEMP website, contact at other organizations, and mailings / written materials from FEMP were mentioned most often.

Table 44 Other contacts with whom communicate most when dealing with FEMP

Contact	Percent of FEMP participants who reported an other contact (N=29)
FEMP website	43
Other firms / contacts and organizations	19
Mailings/written materials from FEMP	18
Federal contacts	11
Contacts at conferences or workshops	7
E-mail correspondence	4
Other	4

Adds to more than 100% due to multiple responses

To understand these results better, we looked at the types of contacts that participants communicate with most often when dealing with FEMP by region and responsibility. These results are presented in Table 45 and Table 46.

National laboratories and FEMP headquarters are communicated with most often in the Philadelphia region. Regional offices are communicated with most often in the Boston region. ESPC / SAVEnergy Audit contractors are communicated with most often in the Chicago region.

Table 45 Type of contact with whom communicate most when dealing with FEMP by region

Region	Percent of FEMP participants				
	National laboratories	FEMP headquarters	Regional offices	ESPC or SAVEnergy Audit contractors	Other
Overall (N=329)	26	23	22	20	9
Region					
Boston (N=21)	14	5	52	24	5
Philadelphia (N=95)	22	46	17	11	4
Atlanta (N=47)	19	23	17	26	15
Chicago (N=45)	16	16	18	40	11
Denver (N=58)	9	40	22	21	9
Seattle (N=63)	14	35	27	14	10

National laboratories are communicated with most often by project initiators and planners. FEMP headquarters are communicated with most often by project expeditors and people with secondary energy project responsibilities. Regional offices are communicated with most often by People with primary energy project responsibilities and by people with primary operations and maintenance responsibilities. ESPC / SAVEnergy Audit contractors are communicated with most often by people with primary operations and maintenance responsibilities.

Table 46 Type of contact with whom communicate most when dealing with FEMP by responsibility

Responsibility	Percent of FEMP participants				
	National laboratories	FEMP headquarters	Regional offices	ESPC or SAVEnergy Audit contractors	Other
Overall (N=329)	26	23	22	20	9
Responsibility					
Project expeditors and people with secondary energy project responsibilities (N=37)	16	54	14	14	3
Project initiators and planners (N=97)	36	17	21	20	7
People with primary energy project responsibilities (N=155)	25	19	25	21	11
People with primary operations and maintenance responsibilities (N=40)	20	23	25	25	8

Satisfaction with FEMP contact

To assess satisfaction with FEMP contact, we asked participants to rate their satisfaction with various aspects of the contact that they have had with FEMP. The ratings were on a 1 to 10 scale, where 1 meant very dissatisfied and 10 meant very satisfied. The results are presented in Table 47.

Satisfaction with all aspects of participant contact with FEMP are consistently high, with an absence of a cluster of dissatisfied participants with any aspect of FEMP contact. The percent of participants who give a rating of 8 or higher range from 87 to 90 percent, with the percent giving a rating of 10 ranging from 30 to 35 percent. On average, satisfaction ratings with aspects of FEMP contact range from 8.5 to 8.8. These are very good satisfaction ratings. Participants rate satisfaction with the knowledge of FEMP staff the highest. Ninety percent of participants rate the level of satisfaction with this aspect at 8 or higher, with 35 percent giving a rating of 10. On average, participants rate the level of satisfaction with this aspect at 8.8. This indicates that participants are satisfied with the knowledge of the people with whom they come in contact.

Table 47 Satisfaction with aspects of FEMP contact

Satisfaction rating	Percent of FEMP participants					
	Knowledge of staff (N=305)	Quality of assistance (N=312)	Timeliness of assistance (N=308)	Objectivity of assistance (N=305)	Ease of contacting and interacting with staff (N=304)	Comprehensiveness of assistance (N=308)
10	35	33	33	32	31	30
9	22	21	18	21	22	20
8	33	35	38	35	34	38
7	7	6	6	4	6	7
6	1	3	2	5	4	2
5	1	2	2	2	2	3
4	0	0	1	0	0	1
3	0	0	1	0	0	0
2	0	0	0	0	1	0
1	0	0	0	0	0	0
Mean	8.8	8.7	8.6	8.6	8.6	8.5

To understand these results better, we compared satisfaction with aspects of FEMP contact by region, responsibility, agency, and federal contractors.⁷ These results are presented in Table 48.

Table 48 Satisfaction with aspects of FEMP contact by region, responsibility, agency, and federal contractors

Segment	Knowledge of staff		Quality of assistance		Timeliness of assistance		Objectivity of assistance		Ease of contacting and interacting with staff		Comprehensiveness of assistance	
	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N
Overall	8.8	305	8.7	312	8.6	308	8.6	305	8.6	304	8.5	308
Region												
Boston	8.7	18	8.6	19	9.0	19	8.8	17	9.2	18	8.6	19
Philadelphia	8.8	89	8.8	93	8.6	91	8.6	91	8.3	89	8.6	92
Atlanta	9.1	42	8.8	42	8.7	43	9.0	41	8.9	41	8.7	43
Chicago	8.3	43	8.2	44	8.1	42	8.2	43	8.5	43	8.1	44
Denver	8.6	52	8.6	53	8.6	52	8.6	51	8.7	51	8.5	49
Seattle	8.9	61	8.8	61	8.8	61	8.7	62	8.6	62	8.5	61
Responsibility												
Project expeditors and people with secondary energy project responsibilities	8.7	34	8.9	34	8.8	33	8.3	34	8.6	33	8.7	34
Project initiators and planners	8.8	89	8.6	93	8.5	92	8.7	91	8.3	88	8.5	91
People with primary energy project responsibilities	8.7	145	8.7	148	8.7	147	8.7	143	8.7	147	8.5	147
People with primary operations and maintenance responsibilities	8.8	37	8.5	37	8.3	36	8.6	37	8.5	36	8.6	36
Agency												
DOD	8.8	90	8.8	94	8.7	93	8.7	92	8.5	91	8.6	90
Big four	8.7	67	8.3	67	8.5	66	8.5	64	8.7	67	8.5	67
Second tier	8.9	80	8.8	82	8.8	80	8.8	80	8.6	79	8.6	81
Third tier	8.7	23	8.6	24	8.3	24	8.8	24	8.5	24	8.7	24
Federal contractors	8.5	45	8.7	45	8.3	45	8.3	45	8.5	43	8.2	46

We also looked at average levels of satisfaction with these aspects by the type of contact that participants communicate with most often when dealing with FEMP. These results are presented in Table 49. Average levels of satisfaction are highest for all aspects among participants who communicate most often with FEMP headquarters. Average levels of satisfaction are lowest for knowledge of staff, quality of assistance, timeliness of assistance, and objectivity of assistance among participants who communicate most often with ESPC / SAVEnergy Audit contractors. Average levels of satisfaction are lowest for ease of contacting and interacting with staff and comprehensiveness of assistance among participants who communicate most often with national laboratories. It is important to note, however, that while satisfaction is lowest among these aspects, the satisfaction ratings are still very good.

⁷ Refer to Chapter 1 for descriptions of these segments.

Table 49 Satisfaction with aspects of FEMP contact by type of contact with who communicated most

Contact	Knowledge of staff		Quality of assistance		Timeliness of assistance		Objectivity of assistance		Ease of contacting and interacting with staff		Comprehensiveness of assistance	
	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N
Overall	8.8	305	8.7	312	8.6	308	8.6	305	8.6	304	8.5	308
National laboratories	8.6	69	8.7	73	8.7	69	8.5	69	8.2	70	8.3	73
FEMP headquarters	9.1	84	8.9	85	8.9	84	8.9	84	8.8	83	8.8	83
Regional offices	8.7	72	8.6	73	8.4	72	8.8	69	8.5	72	8.5	70
ESPC or SAVEnergy Audit contractors	8.5	59	8.3	57	8.4	59	8.2	59	8.7	59	8.4	58
Other	8.8	21	8.7	24	8.7	24	8.6	24	8.8	20	8.7	24

For each of the six aspects addressed in the survey, we asked those who gave a rating of 7 or less to suggest improvements. Again, it is important to note that the percent of participants who gave a rating of 7 or less ranges from only 10 to 13 percent, which indicates low levels of dissatisfaction. A summary of these results is presented in Table 50 through Table 55. More detailed responses are presented in Appendix B.

In summary, the single area that stands out for a minority of participants is FEMP customer communications. Participants want to be able to easily reach FEMP staff, communicate without delays, and receive follow-up support. This is a positive result as it indicates that customers are demanding FEMP services. The high satisfaction ratings and a desire for more communication and interaction speak well for FEMP. A discussion of the results for each of the aspects is presented below.

Not surprisingly, of the 31 participants (9%) who reported satisfaction with knowledge of staff at 7 or less (Table 50), improvements regarding staff needing more knowledge and expertise are mentioned most often.

Table 50 Suggestions for improving knowledge of staff

Suggestion	Percent of participants who gave a rating of 7 or less (N=31)
Staff needs more knowledge and expertise	30
No improvement needed	16
Communication needs to be increased	7
Hard to reach staff or get calls returned	7
Need more hands-on and practical expertise from staff	7
Better/more info/assistance needed	7
Other	13
Don't know	16

Adds to more than 100% due to multiple responses

Of the 35 participants (11%) who reported satisfaction with quality of assistance at 7 or less (Table 51), improvements regarding more contact, interaction, and follow-up from FEMP staff are cited most frequently.

Table 51 Suggestions for improving quality of assistance

Suggestion	Percent of participants who gave a rating of 7 or less (N=35)
Need more contact, interaction, and follow-up from FEMP staff	17
No improvement needed	14
More knowledgeable staff needed	14
Be more flexible by giving more help with specific project needs	11
Promote and market products and services more	11
Other	19
Don't know	14

Of the 35 participants (12%) who reported satisfaction with timeliness of assistance at 7 or less (Table 52), improvements regarding increasing the speed of follow-up communications are mentioned most often.

Table 52 Suggestions for improving timeliness of assistance

Suggestion	Percent of participants who gave a rating of 7 or less (N=35)
Timeliness is too slow / increase speed of follow-up communications	38
Timeliness is good	15
FEMP should staff-up	6
Hard to reach FEMP staff or get follow-up / increase availability of FEMP staff	6
Streamline process of providing service	6
Other	24
Don't know	11

Adds to more than 100% due to multiple responses

Of the 35 participants (11%) who reported satisfaction with objectivity of assistance at 7 or less (Table 53), improvements regarding focusing more expertise and recommendations on specific needs and recommendations of customers are mentioned most often.

Table 53 Suggestions for improving objectivity of assistance

Suggestion	Percent of participants who gave a rating of 7 or less (N=35)
Focus more expertise and recommendation on specific needs and issues of customers	18
FEMP procedures are too rigid	14
Objectivity is good	14
Increase internal or interagency communications at FEMP	6
Need more expertise with staff	6
Increase FEMP staff accessibility / more follow-up	6
Other	24
Don't know	14

Of the 40 participants (13%) who reported satisfaction with ease of contacting and interacting with staff at 7 or less (Table 54), issues regarding difficulty in contacting FEMP and not knowing who to contact are cited most frequently.

Table 54 Suggestions for improving ease of contacting and interacting with staff

Suggestion	Percent of participants who gave a rating of 7 or less (N=40)
Difficult to contact FEMP staff / difficult to know who to contact at FEMP	33
Contact and interaction with FEMP is just fine	13
Staff is slow to return calls	10
Staff up at FEMP	8
FEMP should take more interest in our projects	5
Website needs better links and information	5
Other	17
Don't know	15

Adds to more than 100% due to multiple responses

Of the 40 participants (13%) who reported satisfaction with comprehensiveness of assistance at 7 or less (Table 55), suggestions regarding providing information to cover more technologies / services and increasing follow-up communications are cited most frequently.

Table 55 Suggestions for improving comprehensiveness of assistance

Suggestion	Percent of participants who gave a rating of 7 or less (N=40)
Comprehensiveness is good	23
Provide information to cover more technologies & services / focus more on specific needs	17
Increase follow-up communications	13
Increase expertise of staff	5
Other	27
Don't know	23

Adds to more than 100% due to multiple responses

Overall satisfaction with specific FEMP services

In addition to assessing satisfaction with various aspects of the FEMP contact, we assessed satisfaction with FEMP overall and five FEMP services: financing services, project-specific technical assistance, technical information, general awareness and outreach efforts, and the FEMP website. We asked participants to rate their satisfaction on a 1 to 10 scale, where 1 meant very dissatisfied and 10 meant very satisfied. The results are presented in Table 56.

Participant satisfaction with FEMP overall and FEMP services is also high, again with an absence of a cluster of dissatisfied participants. Seventy-nine percent of participants rate the level of satisfaction with FEMP overall at 8 or higher, with 17 percent giving a rating of 10. On average, participants rate the level of satisfaction with FEMP at 8.1. This rating is comparable to ratings given by technical assistance participants surveyed in 1997 (8.3), 1998 (8.2), and in 1999 (8.0). For the five FEMP services addressed by the surveyed, the percent of participants who give a rating of 8 or higher range from 74 to 83 percent, with the percent giving a rating of 10 ranging from 17 to 30 percent. On average, satisfaction ratings for the five FEMP services range from 8.0 to 8.3. These are very good satisfaction ratings and indicate that participants are satisfied with their use of FEMP services.

Table 56 Satisfaction with FEMP services – overall and by service

Satisfaction rating	Percent of FEMP participants					
	FEMP overall (N=396)	Financing services (N=96)	Project-specific technical assistance (N=102)	Technical information (N=290)	General awareness and outreach efforts (N=265)	Website (N=332)
10	17	20	30	27	25	26
9	22	15	17	16	18	15
8	40	39	30	40	36	40
7	9	12	10	8	11	8
6	4	5	6	3	3	4
5	6	7	4	5	5	4
4	1	1	1	1	0	1
3	1	1	1	1	1	1
2	1	1	1	0	0	0
1	1	0	0	0	1	0
Mean	8.1	8.0	8.3	8.3	8.3	8.2

To understand these results better, we compared satisfaction with FEMP services by region, responsibility, agency, and federal contractors.⁸ These results are presented in Table 57.

Table 57 Satisfaction with FEMP services by region, responsibility, agency, and federal contractors

Segment	FEMP overall		Financing services		Project-specific technical assistance		Technical information		General awareness and outreach efforts		Website	
	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N
Overall	8.1	396	8.0	96	8.3	102	8.3	290	8.3	265	8.2	332
Region												
Boston	8.6	23	7.7	6	8.6	7	8.3	18	8.6	13	8.3	19
Philadelphia	8.4	107	8.6	22	8.5	36	8.5	84	8.4	81	8.3	95
Atlanta	8.3	59	7.8	14	8.6	11	8.8	42	8.6	44	8.7	50
Chicago	7.5	65	7.6	22	7.7	14	8.0	38	7.7	43	7.6	52
Denver	7.9	70	7.3	12	8.1	18	7.9	57	8.2	38	8.3	58
Seattle	8.0	72	8.3	20	8.2	16	8.3	51	8.1	46	8.2	58
Responsibility												
Project expeditors and people with secondary energy project responsibilities	8.2	50	8.3	10	8.4	7	7.9	41	8.2	35	8.0	44
Project initiators and planners	8.1	110	8.1	28	8.3	30	8.3	83	8.3	78	8.3	104
People with primary energy project responsibilities	8.1	184	7.9	45	8.3	51	8.4	131	8.3	124	8.3	138
People with primary operations and maintenance responsibilities	7.9	52	7.3	13	8.1	14	8.3	35	7.9	28	8.3	46
Agency												
DOD	8.1	127	7.9	29	8.7	22	8.5	87	8.4	91	8.3	109
Big four	8.0	87	8.2	23	7.7	27	8.2	65	8.4	52	8.2	68
Second tier	8.4	96	7.8	27	8.4	34	8.5	69	8.3	69	8.2	78
Third tier	8.3	25	8.8	5	8.9	13	8.5	20	8.3	15	8.6	21
Federal contractors	7.8	61	7.4	12	7.3	6	7.7	49	7.7	38	8.0	56

For FEMP overall and each of the five services addressed in the survey, we asked those who gave a rating of 7 or less the reasons for their rating. Again, it is important to note that the percent of participants who gave a rating of 7 or less ranges from only 17 to 26 percent, which indicates low levels of dissatisfaction. A summary of these results is presented in Table 58 through Table 63. More detailed responses are presented in Appendix B.

Of the 84 participants (23%) who reported satisfaction with FEMP overall at 7 or less (Table 58), issues regarding not knowing enough information about FEMP and needing better or more information on services and technologies are cited most frequently.

⁸ Refer to Chapter 1 for descriptions of these segments.

Table 58 Reasons for rating satisfaction with FEMP overall at 7 or less

Reason	Percent of participants who gave a rating of 7 or less (N=84)
Don't know enough about FEMP	24
Need better or more complete information and presentations	15
Like the programs and services	10
Need more help with funding	8
Ease of accessibility, use or communications	7
FEMP is okay, but not great	6
FEMP procedures are too rigid	6
FEMP service or response time is too slow	5
Good information and presentation	5
Service needs to be tailored more to our specific needs	4
Other	14

Adds to more than 100% due to multiple responses

Of the 26 participants (27%) who reported satisfaction with FEMP financing services at 7 or less (Table 59), issues regarding the process being too slow with too much bureaucracy are cited most frequently.

Table 59 Reasons for rating satisfaction with FEMP financing services at 7 or less

Reason	Percent of participants who gave a rating of 7 or less (N=26)
Financing is too slow with too much bureaucracy	31
Does not cover enough projects or technologies	12
Financing services are incomplete & funding is too limited	12
Changing energy prices made ESPC fall through	4
Difficult to get a hold of the right person on financing	4
Financing is based too much on investment ratios	4
Financing is OK or of average quality	4
Other	28
Don't know	4

Adds to more than 100% due to multiple responses

Of the 23 participants (23%) who reported satisfaction with FEMP project-specific technical assistance at 7 or less (Table 60), issues regarding the assistance being good are cited most frequently. Many of these participants gave a rating of 7, which is a borderline rating that in some cases, like these, indicate a positive connotation rather than a negative one.

Table 60 Reasons for rating satisfaction with project-specific technical assistance at 7 or less

Reason	Percent of participants who gave a rating of 7 or less (N=23)
Good project assistance, project information, and presentation	26
Audit needs improvement	9
Interaction and follow-up with FEMP is slow	9
Don't know enough about project assistance	9
Project assistance was cursory and not up to industry standards	9
FEMP procedures are too bureaucratic or too rigid	9
Recommendations do not result in much savings	4
We have to pay for some of the assistance provided by FEMP	4
Other	22

Of the 52 participants (18%) who reported satisfaction with FEMP technical information at 7 or less (Table 61), issues regarding the technical information from FEMP being good are cited most frequently. Many of these participants gave a rating of 7, which is a borderline rating that in some cases, like these, indicate a positive connotation rather than a negative one.

Table 61 Reasons for rating satisfaction with FEMP technical information at 7 or less

Reason	Percent of participants who gave a rating of 7 or less (N=52)
Technical information from FEMP is good	27
Information was cursory	15
Don't know enough about technical information	14
Information is not applicable to our needs	8
Technical information was out-of-date	8
Technical assistance was too technical	6
Information not practical or specific enough	4
Better information exists from non-FEMP sources	2
Not enough topics covered by information	2
Lacks real-world economic information to aid in decision making	2
Other	10

Of the 55 participants (21%) who reported satisfaction with FEMP general awareness and outreach efforts at 7 or less (Table 62), issues regarding not knowing enough about general awareness and outreach efforts are cited most frequently.

Table 62 Reasons for rating satisfaction with FEMP general awareness and outreach efforts at 7 or less

Reason	Percent of participants who gave a rating of 7 or less (N=55)
Don't know enough about efforts	33
FEMP information is good	15
FEMP information was cursory	6
More outreach from FEMP needed	6
Do not have enough staff/money/resources for it	4
FEMP sent me the information that I did not need	4
Difficulty/time involved in getting information from FEMP	2
FEMP information did not contain enough case studies	2
FEMP information is not applicable to our needs	2
FEMP information is not site-specific enough	2
FEMP information not technical enough	2
FEMP information was inaccurate	2
Other	23
Don't know	6

Adds to more than 100% due to multiple responses

Of the 64 participants (18%) who reported satisfaction with the FEMP website at 7 or less (Table 63), issues regarding it being hard to find things or navigate the website are cited most frequently.

Table 63 Reasons for rating satisfaction with the FEMP website at 7 or less

Reason	Percent of participants who gave a rating of 7 or less (N=64)
It is hard to find things or navigate the website	30
Don't know enough about website	22
Website is good and informative	21
Information on website is not applicable to our needs	6
Information is not technical enough	5
Information is out-of-date	3
Other	7
Don't know	7

Costs vs. benefits of FEMP services

In addition to assessing satisfaction with FEMP and its services, we assessed how participants perceive the benefits of FEMP services in relation to their costs. We asked participants if they think the benefits they receive from FEMP services is greater than, the same as, or less than the costs of using FEMP services in terms of the time and money expended. The results are presented in Table 64.

In all, over 90 percent of FEMP participants think that the benefits of FEMP services are equal to or greater than the costs associated with obtaining those services. Sixty-four percent of FEMP participants think that the benefits of FEMP services are greater than the costs, while only 10 percent think that the benefits are less than the costs. The remaining 27 percent think that the benefits are about the same as the costs.

Table 64 Costs vs. benefits of FEMP services

FEMP services are:	Percent of FEMP participants (N=333)
Greater than the costs	64
About the same as the costs	27
Less than the costs	10

To understand these results better, we looked at the relation of benefits and costs by responsibility. These results are presented in Table 65. People with primary operations and maintenance responsibilities are least likely to think that the benefits of FEMP services are greater than the costs. This may be because people with primary operations and maintenance responsibilities are focused on keeping the current systems operating and are less focused on new energy efficient technologies and systems or on modifying their operations in significant ways. Project initiators and planners are least likely to think that the benefits of FEMP services are less than the costs. These results indicate that types people who can do the most with FEMP services also are the same people who value these services the most.

Table 65 Costs vs. benefits of FEMP services by responsibility

Responsibility	Percent of FEMP participants		
	FEMP services are greater than the costs	FEMP services are about the same as the costs	FEMP services are less than the costs
Overall (N=333)	64	27	10
Responsibility			
Project expeditors and people with secondary energy project responsibilities (N=40)	68	18	15
Project initiators and planners (N=98)	68	29	3
People with primary energy project responsibilities (N=152)	63	26	11
People with primary operations and maintenance responsibilities (N=43)	51	35	14

Most and least useful FEMP services

To assess the types of services that FEMP participants find most and least useful, we asked participants to report which of FEMP services is the most useful to them and which FEMP services are least useful to them. A summary of these results is presented in Table 66 and Table 67, respectively. More detailed responses are presented in Appendix B.

Technical assistance and information (21%) was mentioned most often as the most useful service that FEMP offers. This was followed by ESPCs (15%), the website (13%), SAVEnergy Audits (9%), printed materials, publications, and newsletters (8%), and training, workshops, and conferences (8%).

Table 66 Most useful FEMP services

Service	Percent of FEMP participants (N=413)
Technical assistance and information	21
ESPCs or Super ESPCs	15
Website	13
SAVEnergy Audits	9
Printed materials, publications, or newsletters	8
Training, workshops, or conferences	8
Awareness information and programs	6
General information	5
Federal labs or regional offices	4
FEMP Focus	4
Funding and financing	3
Outreach services and efforts	2
Renewable energy information or assistance	2
Software	2
Products and procurement information or service	2
Other	9
Don't know	6

Adds to more than 100% due to multiple responses

Fifty-seven percent of participants are not able to identify the least useful FEMP services. These participants indicate that they did not know what the least useful services are (33%) or say none of FEMP services are least useful (24%). Additionally, the services that are identified as least useful are identified by a small number of FEMP participants, and these participants report that funding, financing and ESPC services are the least useful.⁹ In these cases, these are services that only apply to a subset of all FEMP customers, those who are able to use ESPC or FEMP financing mechanisms.

⁹ A service can appear on both the most and least useful lists because some participants cited the service as most useful, while other participants cited the services as least useful. There were not cases where a participant cited the same service as both most and least useful.

Table 67 Least useful FEMP services

Service	Percent of FEMP participants (N=413)
Funding and financing	12
ESPCs or Super ESPCs	10
Technical assistance and information	5
Outreach services and efforts	3
Awareness information and programs	2
FEMP workshops, seminars, conferences or training	2
SAVEnergy Audits	2
FEMP Focus	1
Website	1
Other	8
None	24
Don't know	33

Adds to more than 100% due to multiple responses

Summary of findings

- Colleagues, peers and other personal contacts have a strong influence on the decision to use FEMP services.
- Participants have comparable levels of contact with each of the FEMP offices examined, including the FEMP headquarters, the national laboratories, DOE regional offices, and ESPC and SAVEnergy contractor offices.
- FEMP participants are very satisfied with their FEMP interaction and participation and report strong satisfaction with FEMP in the areas of knowledgeable staff, quality of service, objectiveness of service, service comprehensiveness, and timeliness of the assistance received.
- Participant satisfaction with FEMP overall is high, with an absence of a cluster of dissatisfied participants. On average, participants rate the level of satisfaction with FEMP at 8.1. This rating is comparable to ratings given by technical assistance participants surveyed in 1997 (8.3), 1998 (8.2), and in 1999 (8.0).
- Participant satisfaction with the five FEMP services addressed in the survey is also high, with an absence of a cluster of dissatisfied participants for any service. On average, satisfaction ratings for the five FEMP services range from a 8.0 to 8.3. These are very good satisfaction ratings and indicate that participants are satisfied with their use of FEMP services.
- Most all of FEMP participants think the benefits of obtaining services meet or exceed the total costs associated with obtaining those services.

- Participants report that FEMP technical assistance and information are the most useful services that FEMP offers. This is followed by ESPCs, the FEMP website, SAVEnergy Audits, printed materials and publications, and training, workshops and conferences.
- Satisfaction with FEMP is high enough that the most effective marketing method for FEMP services is through customer referrals and networking.

Recommendations

- Continue successful efforts to maintain customer satisfaction through the effective delivery of high quality, value-added services.
- Develop marketing strategies that emphasize and take advantage of customer referrals and networking. These strategies will be effective at increasing awareness and use of FEMP services due to the high satisfaction levels among FEMP customers and the fact that colleagues, peers and other personal contacts have a strong influence on the decision to use FEMP services.
- Provide customers with contact information for the key FEMP contacts responsible for each of the major FEMP services so that customers know whom to call when they need information or assistance.
- Maintain timely and ongoing communications with participants in key FEMP services.

4. Project Implementation and FEMP Influence

Energy efficiency, renewable energy, and water conservation projects

To assess the level of project implementation among participants and nonparticipants, we asked participants and nonparticipants how many energy efficiency, renewable energy, and water conservation projects they have implemented in the last two years. We then asked participants for the percent of these projects where they have used FEMP information or assistance. The results are presented in Table 68.

Over the last two years, FEMP participants have been involved with implementing significantly more energy efficiency, renewable energy, and water conservation projects than nonparticipants. Participants have implemented 3.6 times as many energy efficiency, 7.6 times as many renewable energy, and 3.2 times as many water conservation projects as nonparticipants overall. FEMP information or assistance has been used by participants on 33 percent of their energy efficiency projects, 49 percent of their renewable energy projects, and 42 percent of their water conservation projects. These results indicate that FEMP participants are doing more projects than nonparticipants, and that FEMP assistance is used on a number of these projects.

Table 68 Implementation of energy efficiency, renewable energy, and water conservation projects

Type of project	FEMP participants	FEMP nonparticipants		
		Overall	Uninitiated nonparticipants	Initiated nonparticipants
Energy efficiency				
Overall number of projects implemented in the last 2 years	17.2	4.7	4.1	6.9
Number of projects where FEMP information or assistance was used	5.6			
Percent of projects where FEMP information or assistance was used	33			
N	390	371	287	84
Renewable energy				
Overall number of projects implemented in the last 2 years	4.4	0.6	0.6	0.7
Number of projects where FEMP information or assistance was used	2.2			
Percent of projects where FEMP information or assistance was used	49			
N	399	365	283	82
Water conservation				
Overall number of projects implemented in the last 2 years	2.7	0.9	0.6	1.5
Number of projects where FEMP information or assistance was used	1.2			
Percent of projects where FEMP information or assistance was used	42			
N	392	379	294	85

To determine the extent to which differences in the number of projects implemented is a function of participation in FEMP or customer size, we looked at differences between participants and nonparticipants in the average number of buildings for which they are responsible (presented earlier in Table 9). On average, participants are responsible for more 3.5 times as many buildings as nonparticipants overall (144 vs. 42 buildings, respectively). Given this, the difference between participants and nonparticipants in energy efficiency and water conservation projects may be more a function of customer size, while the difference in renewable energy projects may be more a function of participation in FEMP.

To understand these results better, we compared the number of projects implemented among participants and nonparticipants overall by region, responsibility, agency, and federal contractors.¹⁰ Participant results are presented in Table 69, and nonparticipant results are presented in Table 70.

Key differences with respect to the number of projects implemented by participants are presented below.

- Participants in the Chicago region, participants who are project initiators and planners, and participants in the DOD implement more energy efficiency projects, while participants in the Boston region, participants with primary operations and maintenance responsibilities, and participants in second tier agencies implement less energy efficiency projects.
- Participants in the Denver region, participants who are project initiators and planners, and participants in second tier agencies implement more renewable energy projects, while participants in the Boston region, participants with primary operations and maintenance responsibilities, and participants in the big four agencies implement fewer renewable energy projects.
- Participants in the Philadelphia region, participants who are project initiators and planners, and participants in the DOD implement more water conservation projects, while participants in the Boston region, participants with primary operations and maintenance responsibilities, and participants in the big four agencies implement fewer water conservation projects.
- Participants who are federal contractors implement more energy efficiency and renewable energy projects than participants in agencies. Participants who are federal contractors implement about as many water conservation projects as participants in the DOD and more water conservation projects than participants in the big four, second tier, and third tier agencies.

Key differences with respect to percent of projects where FEMP information or assistance is used are presented below.

- Participants in the Denver region are less likely to implement energy efficiency projects using FEMP information and assistance, participants in the Boston region are less likely to implement renewable energy projects using FEMP information and assistance, and participants in the Atlanta region are less likely to implement water conservation projects using FEMP information and assistance.
- Participants who are project expeditors and people with secondary energy project responsibilities and who are people with primary operations and maintenance responsibilities are less likely to implement energy efficiency and water conservation projects using FEMP information and assistance, and participants with primary energy project responsibilities are less likely to implement renewable energy projects using FEMP information and assistance.

¹⁰ Refer to Chapter 1 for descriptions of these segments.

- Participants in the big four agencies are less likely to implement energy efficiency projects using FEMP information and assistance, participants in the second tier agencies are less likely to implement renewable energy projects using FEMP information and assistance, and participants in second and third tier agencies are less likely to implement water conservation projects using FEMP information and assistance.
- Participants who are federal contractors are less likely than participants in the DOD to implement projects using FEMP information and assistance.

Table 69 Participant implementation of energy efficiency, renewable energy, and water conservation projects by region, responsibility, agency, and federal contractors

Segment	---- Energy efficiency ----			---- Renewable energy ----			---- Water conservation ----		
	Overall number of projects implemented in the last two years	Percent of projects where FEMP information or assistance was used	N	Overall number of projects implemented in the last two years	Percent of projects where FEMP information or assistance was used	N	Overall number of projects implemented in the last two years	Percent of projects where FEMP information or assistance was used	N
Overall	17.2	33	390	4.4	49	399	2.7	42	392
Region									
Boston	5.5	41	21	0.5	8	23	0.5	29	23
Philadelphia	14.1	43	98	5.2	75	104	4.7	65	102
Atlanta	17.8	40	57	4.3	90	59	1.5	13	56
Chicago	28.1	35	73	1.3	58	71	2.3	27	71
Denver	17.1	13	67	8.2	21	69	2.1	24	69
Seattle	13.4	30	74	3.9	17	73	2.7	24	71
Responsibility									
Project expeditors and people with secondary energy project responsibilities	10.8	25	46	3.8	64	50	2.1	27	45
Project initiators and planners	28.9	40	107	5.7	81	110	5.5	48	108
People with primary energy project responsibilities	14.8	25	183	4.9	25	187	1.9	41	186
People with primary operations and maintenance responsibilities	7.4	43	54	0.5	67	52	0.8	29	53
Agency									
DOD	14.3	37	122	3.2	74	129	4.1	52	121
Big four	12.6	26	85	0.6	66	86	1.2	26	89
Second tier	9.6	40	97	7.3	32	99	1.7	32	97
Third tier	11.8	30	24	1.8	61	25	2.4	25	25
Federal contractors	43.1	31	62	8.4	52	60	4.0	42	60

Key differences with respect to number of projects implemented by nonparticipants are presented below.

- Nonparticipants in the Boston and Denver regions, nonparticipants who are project initiators and planners, and nonparticipants in the DOD implement more energy efficiency projects. Nonparticipants in the Chicago region, nonparticipants who are project expeditors and people with secondary energy project responsibilities, and participants in second tier agencies implement less energy efficiency projects.
- Nonparticipants in the Denver region, nonparticipants who are people with primary energy project responsibilities, and nonparticipants in second tier agencies implement more renewable energy projects. Nonparticipants in the Seattle region, nonparticipants who are project expeditors and people with secondary energy project responsibilities, and nonparticipants in the third tier agencies implement fewer renewable energy projects.
- Nonparticipants in the Boston region, nonparticipants who are project initiators and planners, and nonparticipants in the DOD implement more water conservation projects. Nonparticipants in the Atlanta region, nonparticipants who are project expeditors and people with secondary energy project responsibilities, and nonparticipants in the second tier agencies implement fewer water conservation projects.
- Nonparticipants who are federal contractors implement more energy efficiency, renewable energy, and water conservation projects than nonparticipants in agencies.

Table 70 Nonparticipant implementation of energy efficiency, renewable energy, and water conservation projects by region, responsibility, agency, and federal contractors

Segment	-- Energy efficiency --		-- Renewable energy --		-- Water conservation --	
	Overall number of projects implemented in the last two years	N	Overall number of projects implemented in the last two years	N	Overall number of projects implemented in the last two years	N
Overall	4.7	371	0.6	365	0.9	379
Region						
Boston	14.8	16	0.5	15	4.1	16
Philadelphia	3.7	52	0.3	49	0.8	53
Atlanta	5.5	30	0.3	30	0.7	31
Chicago	2.0	209	0.4	205	0.5	213
Denver	14.5	36	2.4	36	1.5	35
Seattle	8.0	28	0.2	30	1.2	31
Responsibility						
Project expeditors and people with secondary energy project responsibilities	0.9	85	0.1	85	0.2	89
Project initiators and planners	9.0	58	0.7	61	1.7	60
People with primary energy project responsibilities	5.7	107	1.0	103	0.9	110
People with primary operations and maintenance responsibilities	4.5	121	0.5	116	1.0	120
Agency						
DOD	5.9	100	0.4	100	1.1	103
Big four	3.8	66	0.5	61	0.5	67
Second tier	1.4	137	0.7	136	0.3	138
Third tier	1.9	23	0.3	22	0.4	24
Federal contractors	15.0	45	0.9	46	2.7	47

General level of support received from senior management

To assess the level of support that senior management gives for implementing energy projects, we asked participants and nonparticipants to rate the level of support they receive from senior management. The ratings were on a 1 to 10 scale, where 1 meant a very low level of support and 10 meant a very high level of support. The results are presented in Table 71.

The general level of support that respondents receive from senior management for energy projects is comparable across participants and nonparticipants. The percent of respondents who give a rating of 8 or higher range from 60 to 63 percent, with the percent giving a rating of 10 ranging from 25 to 31 percent. On average, ratings for the level of support range from 7.2 to 7.5. These results indicate that lack of support from senior management is not a significant barrier to the use of FEMP services.

Table 71 Level of senior management support for implementing energy projects

Level of support	Percent of FEMP participants (N=396)	Percent of FEMP nonparticipants		
		Overall (N=370)	Uninitiated nonparticipants (N=289)	Initiated nonparticipants (N=81)
10	25	26	25	31
9	12	9	9	11
8	23	27	29	20
7	8	7	6	11
6	5	5	5	6
5	11	9	9	9
4	4	3	4	3
3	4	4	4	5
2	5	2	3	0
1	4	6	7	5
Mean	7.2	7.3	7.2	7.5

We asked respondents who gave a rating of 7 or less the reasons for their rating. A summary of these results is presented in Table 72. More detailed responses are presented in Appendix B.

Of the 160 participants (41%) who rated the level of senior management support at 7 or less, issues regarding energy efficiency being a low priority of management, no or little interest in energy efficiency from management, and no funding being provided or obtainable through management are cited most frequently. Of the 138 nonparticipants (36%) who rated the level of senior management support at 7 or less, issues regarding energy efficiency being a low priority of management and no funding being provided or obtainable through management are cited most frequently.

Table 72 Reasons for rating level of senior management support at 7 or less

Reason	Percent of FEMP participants who gave a rating of 7 or less (N=160)	Percent of FEMP nonparticipants who gave a rating of 7 or less		
		Overall (N=138)	Uninitiated nonparticipants (N=107)	Initiated nonparticipants (N=31)
Energy efficiency is a low priority of management	20	22	23	16
No or little interest in energy efficiency from management	20	7	4	16
No funding is provided or obtainable through management	19	23	22	23
Management is already supporting energy projects	8	15	15	13
Management is not aware or tuned into energy efficiency	4	7	8	3
Other	27	25	24	29
Don't know	3	4	5	3

Adds to more than 100% due to multiple responses

To understand these results better, we compared the level of management support among participants and nonparticipants by region, responsibility, agency, and federal contractors. These results are presented in Table 73, Table 74, and Table 75.

The level of support received from senior management for energy projects is highest among participants in the Boston region and lowest among participants in the Chicago region. Among nonparticipants, the level of support is comparable across regions, except for the Chicago region, where the level of support is the lowest.

Table 73 Level of senior management support for implementing energy projects by region

	--- Participants ---		--- Nonparticipants ---	
	Mean level of support	N	Mean level of support	N
Overall	7.2	396	7.3	370
Region				
Boston	7.9	22	7.8	16
Philadelphia	7.2	101	8.0	50
Atlanta	7.5	57	8.0	31
Chicago	6.6	72	6.7	205
Denver	7.4	69	7.9	36
Seattle	7.2	75	7.6	32

For both participants and nonparticipants, the level of support received from senior management for energy projects is highest among the big four agencies and lowest in second tier agencies.

The level of support received from federal contractors is higher than that received from agencies. This may be due to the fact that federal contractors may have interpreted the question to refer to senior managers within their organization, rather than senior managers within the agencies they service.

Table 74 Level of senior management support for implementing energy projects by agency and federal contractors

	--- Participants ---		--- Nonparticipants ---	
	Mean level of support	N	Mean level of support	N
Overall	7.2	396	7.3	370
Agency				
DOD	7.0	127	7.4	104
Big four	7.5	87	7.8	70
Second tier	6.6	99	6.5	130
Third tier	6.8	24	8.0	23
Federal contractors	8.3	59	8.0	43

For both participants and nonparticipants, the level of support received from senior management for energy projects is highest among people with primary energy project responsibilities and lowest among project expeditors and people with secondary energy project responsibilities.

Table 75 Level of senior management support for implementing energy projects by responsibility

	--- Participants ---		--- Nonparticipants ---	
	Mean level of support	N	Mean level of support	N
Overall	7.2	396	7.3	370
Responsibility				
Project expeditors and people with secondary energy project responsibilities	6.5	51	6.4	83
Project initiators and planners	6.9	108	7.5	59
People with primary energy project responsibilities	7.6	185	7.8	109
People with primary operations and maintenance responsibilities	7.0	52	7.2	119

Influence of Executive Orders

In addition to assessing the level of support that senior management gives for implementing energy projects, we assessed the influence of Executive Orders as a driver for the implementation of energy projects. We asked participants and nonparticipants to rate the influence of Executive Orders on a 1 to 10 scale, where 1 meant not at all a driver and 10 meant a very influential driver. The results are presented in Table 76.

The level of influence that Executive Orders have as a driver to implement energy projects is comparable among participant and nonparticipant groups, but somewhat higher among initiated nonparticipants. The percent of respondents who give a rating of 8 or higher ranges from 63 to 68 percent, with the percent giving a rating of 10 ranging from 29 to 31 percent. On average, ratings for the level of support range from 7.4 to 7.8.

Table 76 Influence of Executive Orders

Level of influence	Percent of FEMP participants (N=399)	Percent of FEMP nonparticipants		
		Overall (N=363)	Uninitiated nonparticipants (N=285)	Initiated nonparticipants (N=78)
10	29	30	30	31
9	12	11	9	18
8	22	23	24	19
7	8	8	7	10
6	5	4	4	3
5	10	11	11	10
4	2	2	2	1
3	6	4	4	3
2	4	4	4	3
1	4	5	5	3
Mean	7.4	7.5	7.4	7.8

To understand these results better, we compared the influence of Executive Orders among participants and nonparticipants by agency and federal contractors. These results are presented in Table 77.

Among participants, the influence of Executive Orders is highest in the DOD and third tier agencies and lowest in the big four and second tier agencies. The influence of Executive Orders is highest among nonparticipants in the big four agencies and lowest in the second tier agencies.

Compared to most of the agencies they serve, the influence of Executive Orders is lower among federal contractors.

Table 77 Influence of Executive Orders by agency and federal contractors

	--- Participants ---		--- Nonparticipants ---	
	Mean level of support	N	Mean level of support	N
Overall	7.4	399	7.5	363
Agency				
DOD	7.7	126	7.5	104
Big four	7.2	88	8.1	68
Second tier	7.2	99	7.1	125
Third tier	7.6	24	7.5	24
Federal contractors	7.2	62	7.3	42

Documentation of energy or cost savings and receptivity to FEMP using documentation

To assess the level of documentation of energy or cost savings and the receptivity to FEMP using this documentation, we first asked participants if they have written any reports, evaluation studies, or press releases about the energy or cost savings from any of their energy projects. If they have, we then asked them if they would be receptive to FEMP contacting them to discuss using this information in FEMP newsletters and case studies. These results are presented in Table 78.

Forty-six percent of FEMP participants document the energy and cost savings for their energy projects, and 80 percent of the participants that document energy savings are receptive to FEMP staff contacting them to discuss the use of this documentation. This type of information has the potential to be used by FEMP to improve the technical information services they offer, to give real world examples of project successes for the website, and to create testimonials for a word-of-mouth referral marketing campaign.

Table 78 Documentation of energy or cost savings and receptivity to FEMP using documentation

	Percent of FEMP participants	N
Have documentation of energy and cost savings	46	399
Receptive to FEMP contact to discuss using documentation in FEMP newsletters and case studies (among those with documentation above)	80	182

To understand these results better, we compared the level of documentation and receptivity among participants and nonparticipants by region, responsibility, agency, and federal contractors. These results are presented in Table 79, Table 80, and Table 81.

Documentation of energy and cost savings and receptivity to FEMP contact regarding this documentation is highest among participants in the Seattle region and lowest in the Boston region.

Table 79 Documentation of energy or cost savings and receptivity to FEMP using documentation by region

	Percent of FEMP participants			
	Have documentation of energy and cost savings	N	Receptive to FEMP contact to discuss using documentation in FEMP newsletters and case studies (among those with documentation)	N
Overall	46	399	80	182
Region				
Boston	30	23	57	7
Philadelphia	50	108	83	54
Atlanta	39	59	74	23
Chicago	45	67	73	30
Denver	43	70	83	30
Seattle	53	72	87	38

Documentation of energy and cost savings is highest in third tier agencies and lowest in the big four agencies and the DOD. Receptivity to FEMP contact regarding this documentation is highest among third tier agencies and lowest among second tier agencies.

Federal contractors are more likely than agencies to document energy and cost savings and are more receptive to FEMP contact than participants.

Table 80 Documentation of energy or cost savings and receptivity to FEMP using documentation by agency

	Percent of FEMP participants			
	Have documentation of energy and cost savings	N	Receptive to FEMP contact to discuss using documentation in FEMP newsletters and case studies (among those with documentation)	N
Overall	46	399	80	182
Agency				
DOD	40	128	84	51
Big four	39	88	77	34
Second tier	47	97	72	46
Third tier	56	25	93	14
Federal contractors	61	61	84	37

Documentation of energy and cost savings is highest among project initiators and planners and lowest among people with primary operations and maintenance responsibilities. Receptivity to FEMP contact regarding this documentation is highest among project initiators and planners and lowest among project expeditors and people with secondary energy project responsibilities.

Table 81 Documentation of energy or cost savings and receptivity to FEMP using documentation by responsibility

	Percent of FEMP participants			
	Have documentation of energy and cost savings	N	Receptive to FEMP contact to discuss using documentation in FEMP newsletters and case studies (among those with documentation)	N
Overall	46	399	80	182
Responsibility				
Project expeditors and people with secondary energy project responsibilities	35	52	67	18
Project initiators and planners	56	110	84	62
People with primary energy project responsibilities	49	184	81	90
People with primary operations and maintenance responsibilities	23	53	75	12

Summary of findings

- Participants in FEMP programs implement significantly more energy and water projects than nonparticipants.
- There is little difference in the level of management support for energy projects between participants and nonparticipants. Management support is perceived to be the highest among people with primary energy project responsibilities and lowest among project expeditors and people with secondary energy project responsibilities. The primary reasons for low management support ratings are that energy is a low priority among management and that management has limited interest in energy.
- There is little difference in the level of influence of Executive Orders between participants and nonparticipants. However, the influence of Executive Orders is stronger in the big four agencies than in second tier agencies for both participants and nonparticipants.

- Forty-six percent of FEMP participants document energy and cost savings, however, 80 percent of those that do are receptive to sharing this information with FEMP. Documentation is highest among participants in the Seattle region and lowest among participants in the Boston region.

Recommendations

- Continue successful efforts to work with customers in the implementation of energy efficiency, renewable energy, and water conservation projects.
- Fully utilize the information that participants are willing to share on the energy and cost savings from projects implemented through FEMP to demonstrate the energy impacts generated by FEMP. Also, consider developing easy-to-use methods for participants to document the energy and cost savings for projects, and make these methods readily available to participants. These methods can be based on methods that are currently being used by participants.

5. Project Needs and Possible FEMP Roles

Need for assistance with technologies and services

Participants and nonparticipants were asked to rate the level of need that exists within their organization for assistance from FEMP in nine different technology and service areas.¹¹ The nine items included renewable technologies, distributed generation, load management, green power purchasing, commissioning service, and others. The ratings were on a 1 to 10 scale, where 1 meant no need and 10 meant a significant need. The results for participants and nonparticipants are presented in Table 82 and Table 83, respectively.

In all areas, the level of need is higher among participants than it is among nonparticipants. There is no strong consensus among participants about need. On average, all nine items were rated between 4.9 and 6.3. Participant express the highest level of need for renewables (6.3), followed somewhat closely by whole building design (5.9). Combined heat and power (5.2), purchasing, green power (5.2), and commissioning and training services (4.9) receive the lowest ratings.

Table 82 Level of need for new services among participants

Level of Need	Percent of participants								
	Renewable energy technologies (N=406)	Whole building energy design and optimization services (N=403)	Distributed or on-site generation systems, including fuel cells and microturbines (N=399)	Maintenance and operations (N=406)	Load management services (N=400)	Development of agency-wide energy management plans (N=395)	Combined heat and power or cogeneration systems (N=401)	Purchasing green power (N=399)	Building commissioning training and services (N=379)
8 - 10	45	38	39	35	31	32	34	30	27
10	19	16	18	14	11	13	13	11	13
9	9	6	8	6	6	6	6	8	5
8	17	16	13	15	14	13	15	11	9
7	13	13	10	9	13	8	7	11	9
6	5	6	6	7	7	7	8	6	7
5	11	14	10	17	15	17	12	15	14
4	3	4	3	5	3	3	4	2	5
3	4	6	5	7	7	5	5	6	7
2	3	4	4	6	5	5	5	6	6
1	16	16	35	15	21	23	27	24	26
Mean	6.3	5.9	5.6	5.6	5.4	5.3	5.2	5.2	4.9

In general, nonparticipants generally report less need for these services. Nonparticipants report the highest need for whole building design (5.3) and maintenance and operations

¹¹ The nine areas addressed by the survey were suggested by FEMP headquarters managers and staff.

(5.2). Whereas participants rate the need for distributed generation (5.6) in the top three, nonparticipants rate it lowest (3.4). Although nonparticipants placed renewables in their top four needs, the average rating was 4.9, a full 1.3 rating points below the rating given by participants.

Table 83 Level of need for new services among nonparticipants

Level of Need	Percent of nonparticipants								
	Renewable energy technologies (N=370)	Whole building energy design and optimization services (N=382)	Distributed or on-site generation systems, including fuel cells and microturbines (N=365)	Maintenance and operations (N=384)	Load management services (N=359)	Development of agency-wide energy management plans (N=368)	Combined heat and power or cogeneration systems (N=381)	Purchasing green power (N=360)	Building commissioning training and services (N=350)
8 - 10	27	35	16	32	22	24	23	22	18
10	10	14	7	11	8	11	8	8	5
9	4	5	2	5	4	2	3	5	5
8	13	16	7	16	10	11	12	9	8
7	11	9	7	11	7	11	9	8	5
6	5	5	4	4	6	7	5	4	3
5	13	12	7	14	16	16	11	14	17
4	5	6	5	4	4	5	5	4	4
3	7	6	3	5	7	4	5	5	5
2	3	4	10	7	5	5	7	6	8
1	28	24	50	23	34	28	36	38	41
Mean	4.9	5.3	3.4	5.2	4.4	4.9	4.3	4.2	3.8

To understand these results better, we compared the ratings of each service by region, responsibility, agency, and federal contractors.¹² These results for participants are presented in Table 84, and the results for aware nonparticipants are presented in Table 85.

Participants who are in the Philadelphia and Denver regions, who are people with primary energy project responsibilities, and who are in second tier agencies report higher levels of need. Participants who are in the Atlanta and Chicago regions, who are either project expeditors and people with secondary energy project responsibilities or people with primary operations and maintenance responsibilities, and who are in the big four agencies report lower levels of need.

¹² Refer to Chapter 1 for descriptions of these segments.

Table 84 Level of need for new services among participants by region, responsibility, agency, and federal contractors

Segment	Development of management plans		Building commissioning		Whole building energy design		Load management		Combined heat and power		Distributed or on-site generation		Renewable energy technologies		Purchasing green power		Maintenance and operations	
	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N
Overall	5.3	395	4.9	379	5.9	403	5.4	400	5.2	401	5.6	399	6.3	406	5.2	399	5.6	406
Region																		
Boston	4.6	22	4.2	23	4.6	23	5.8	23	6.2	23	5.1	23	5.9	23	4.9	22	5.3	23
Philadelphia	6.1	101	5.7	100	6.9	105	5.7	103	5.5	107	6.3	104	6.7	106	5.6	106	6.1	107
Atlanta	4.3	58	4.3	57	5.3	58	5.0	57	4.7	57	4.7	58	6.2	59	4.5	58	5.0	57
Chicago	4.8	71	4.4	65	5.4	74	4.7	74	4.7	74	4.9	73	5.5	74	5.1	73	5.5	74
Denver	6.2	68	5.6	67	6.3	69	5.7	70	5.2	70	5.5	70	6.6	70	5.8	68	5.6	71
Seattle	4.8	75	4.4	67	5.7	74	5.6	73	5.4	70	6.2	71	6.5	74	5.0	72	5.9	74
Responsibility																		
Project expeditors and people with secondary energy project responsibilities	4.9	49	4.4	48	5.2	49	4.9	45	4.7	47	5.1	46	6.2	48	4.8	49	4.8	50
Project initiators and planners	5.3	110	5.3	107	6.3	110	5.3	111	5.6	111	6.1	110	6.4	112	5.2	110	5.6	109
People with primary energy project responsibilities	5.5	182	5.1	176	6.0	191	5.7	190	5.3	189	5.8	188	6.5	191	5.5	187	6.0	191
People with primary operations and maintenance responsibilities	5.2	54	4.1	48	5.6	53	4.9	54	4.4	54	4.2	55	5.4	55	4.8	53	5.4	56
Agency																		
DOD	5.2	127	4.9	117	6.0	128	5.5	128	5.1	128	5.5	129	6.2	131	4.8	126	5.9	129
Big four	5.1	87	4.2	85	5.4	91	5.0	90	4.8	91	5.0	91	6.0	90	5.2	90	4.8	90
Second tier	5.5	96	5.7	96	6.5	100	5.9	98	5.5	98	6.3	94	6.6	101	6.0	98	5.8	101
Third tier	6.0	24	4.5	20	6.6	23	4.7	23	5.2	23	5.1	24	6.5	24	5.8	24	6.1	25
Federal contractors	5.3	61	5.1	61	5.6	61	5.3	61	5.5	61	5.9	61	6.3	60	4.7	61	6.1	61

Nonparticipants who are in the Boston region, who are people with primary energy project responsibilities, and who are in the DOD report higher levels of need. Nonparticipants who are in the Chicago region, who are either project expeditors and people with secondary energy project responsibilities or People with primary operations and maintenance responsibilities, and who are in the second tier agencies report lower levels of need.

Nonparticipants who are federal contractors report higher levels of need than nonparticipants in agencies.

Table 85 Level of need for new services among nonparticipants by region, responsibility, agency, and federal contractors

Segment	Development of management plans		Building commissioning		Whole building energy design		Load management		Combined heat and power		Distributed or on-site generation		Renewable energy technologies		Purchasing green power		Maintenance and operations	
	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N
Overall	4.9	368	3.8	350	5.3	382	4.4	359	4.3	381	3.4	365	4.9	370	4.2	360	5.2	384
Region																		
Boston	6.3	16	5.0	15	6.6	16	4.5	14	6.4	14	4.9	15	6.9	14	5.5	13	6.7	16
Philadelphia	5.7	53	4.7	48	6.0	52	5.0	50	4.6	51	4.0	49	5.3	50	4.9	50	5.5	53
Atlanta	5.2	32	4.5	30	5.7	32	4.7	32	5.1	31	4.4	30	6.2	31	5.7	27	4.9	30
Chicago	4.2	200	3.2	196	4.8	214	3.8	198	3.7	214	2.7	203	4.3	207	3.7	203	4.9	216
Denver	5.6	35	4.9	36	6.1	37	6.1	35	5.5	38	4.4	37	5.9	36	4.8	35	6.4	38
Seattle	6.2	32	3.6	25	5.8	31	4.6	30	4.6	33	4.3	31	4.8	32	4.4	32	5.2	31
Responsibility																		
Project expeditors and people with secondary energy project responsibilities	3.7	86	3.2	86	4.3	91	3.2	84	3.2	90	2.5	87	3.8	90	2.9	81	4.3	90
Project initiators and planners	4.9	59	3.7	56	5.2	60	4.7	60	4.6	61	3.8	59	4.8	58	4.6	61	4.9	59
People with primary energy project responsibilities	5.8	109	4.7	100	6.4	109	5.5	105	5.4	109	4.5	103	6.1	107	5.3	101	5.8	110
People with primary operations and maintenance responsibilities	5.0	114	3.4	108	5.3	122	4.1	110	4.0	121	3.0	116	4.8	115	4.1	117	5.5	125
Agency																		
DOD	4.9	103	4.1	92	5.5	107	4.2	97	4.3	104	3.4	98	5.0	100	3.9	95	5.7	103
Big four	4.9	67	3.6	68	5.8	70	4.5	70	3.9	72	3.0	69	4.5	71	4.5	68	5.2	73
Second tier	4.5	128	3.3	124	4.6	136	3.8	122	3.8	134	3.0	131	4.6	128	3.8	129	4.7	138
Third tier	4.6	24	2.7	22	5.0	22	4.9	24	4.6	23	2.6	20	5.0	23	4.7	23	5.2	23
Federal contractors	6.2	46	5.1	44	6.5	47	5.9	46	5.9	48	5.6	47	6.2	48	5.6	45	5.9	47

Searching for information on other technologies and services

Respondents were asked if they are currently searching for energy-related information in other technology and service areas (Table 86). Thirty-four percent of participants, 26 percent of overall nonparticipants, 25 percent of uninitiated nonparticipants and 29 percent of initiated nonparticipants report that they in fact are searching.

Table 86 Searching for information on other technologies and services

	Percent of FEMP participants (N=413)	Percent of FEMP nonparticipants		
		Overall (N=398)	Uninitiated nonparticipants (N=313)	Initiated nonparticipants (N=85)
Searching for information on other technologies and services	34	26	25	29

We asked participants and nonparticipants to list the types of other technologies and services that they are searching for information about. A summary of the results is presented in Table 87. More detailed responses are presented in Appendix B.

Renewables and energy generation and storage are mentioned most frequently by both participants and nonparticipants.

Table 87 Technologies or services searching for information about

Technology or service	Percent of FEMP participants who are searching (N=140)	Percent of FEMP nonparticipants who are searching		
		Overall (N=103)	Uninitiated nonparticipants (N=78)	Initiated nonparticipants (N=25)
Renewables	27	26	21	40
Energy generation and storage	25	17	15	20
Water related technologies and issues	12	14	13	20
HVAC and Refrigeration	11	10	13	4
Lighting	10	11	11	8
Energy Management and Analysis	7	8	8	8
Building envelope and issues	4	8	10	0
All or any technologies	13	17	18	16
Other technologies and issues	16	14	13	20
No response	2	4	5	0

Adds to more than 100% due to multiple responses

To understand these results better, we compared the percent of participants and nonparticipants who are searching for information by region, responsibility, agency, and federal contractors. These results are presented in Table 88.

Participants who are in the Chicago region, who are project initiators and planners, and who are in third tier agencies are more likely to be searching for information. Participants who are in the Boston region, who are people with primary operations and maintenance responsibilities, and who are in the big four agencies are less likely to be searching for information.

Nonparticipants who are in the Boston region, who are people with primary energy project responsibilities, and who are in the DOD are more likely to be searching for information. Nonparticipants who are in the Chicago region, who are project expeditors and people with secondary energy project responsibilities, and who are in third tier agencies are less likely to be searching for information.

Except for third tier agencies, participants who are federal contractors are more likely than participants in agencies to be searching for information. Nonparticipants who are

federal contractors are more likely than nonparticipants in agencies to be searching for information.

Table 88 Searching for information on other technologies and services by region, responsibility, agency, and federal contractors

Segment	--- Participants ---		--- Nonparticipants ---	
	Percent searching for information	N	Percent searching for information	N
Overall	34	413	26	398
Region				
Boston	22	23	53	17
Philadelphia	34	108	28	54
Atlanta	30	60	41	32
Chicago	39	75	17	223
Denver	35	72	41	39
Seattle	35	75	39	33
Responsibility				
Project expeditors and people with secondary energy project responsibilities	32	53	10	95
Project initiators and planners	38	112	37	62
People with primary energy project responsibilities	37	192	40	113
People with primary operations and maintenance responsibilities	20	56	21	128
Agency				
DOD	34	132	33	109
Big four	29	91	19	73
Second tier	34	102	17	144
Third tier	40	25	13	24
Federal contractors	38	63	54	48

Other types of project assistance recommended for FEMP to develop and provide

We asked participants and nonparticipants to suggest other types of project assistance that FEMP should develop and provide. A summary of the results is presented in Table 89. More detailed responses are presented in Appendix B.

Sixty-four percent of participants and 74 percent of nonparticipants overall said that they had no suggestions on the types of assistance FEMP should provide. Suggestions regarding energy management, analysis and assessment, and funding and purchasing are made most frequently.

Table 89 Types of assistance FEMP should provide

Type of assistance	Percent of FEMP participants (N=413)	Percent of FEMP nonparticipants		
		Overall (N=398)	Uninitiated nonparticipants (N=313)	Initiated nonparticipants (N=86)
Energy management, analysis and assessment	11	8	7	5
Funding and purchasing	8	3	3	2
Energy education and information and training	4	4	4	4
Renewables	4	3	3	4
Water related technologies	2	1	1	0
Building envelope	1	1	1	2
Generation and storage	1	1	1	1
Other technologies and issues	6	8	7	7
No response/None	64	74	73	75

Adds to more than 100% due to multiple responses

Summary of findings

- The need for energy-related technologies and energy support services is higher among participants than nonparticipants.
- Participants express the highest level of need for renewable energy services, followed somewhat closely by whole-building design services.
- Nonparticipants report the highest need for whole-building design services and maintenance and operations associated services.
- Roughly a third of participants and a quarter of nonparticipants report that they are currently searching for information about technologies and services related to energy projects.
- Renewables and energy generation and storage are mentioned most frequently by both participants and nonparticipants as the types of technologies and services about which they are searching for information.

Recommendations

- Continue to develop and provide information pertaining to renewables, whole-building design services, maintenance and operations associated services, and energy generation and storage as these are mentioned most frequently as the types of technologies and services in which customers are most interested. Also, inform customers that these services and information are available through FEMP.

6. FEMP ESPC Impact Issues

The impact of FEMP ESPC and Super-ESPC programs (referred to collectively as ESPC in the remainder of this chapter) is measured by customer adoption of energy project financing using contracts where the project costs are paid back over time from the savings. See Appendix C for a more complete description of the theory of adoption and diffusion of technologies. Other measures of impact include the number of projects implemented that are influenced by ESPC, the influence of ESPC on how financing for major energy projects is obtained, and the extent to which FEMP customers share ESPC information with colleagues.

Stages of adoption

Technology diffusion and adoption theory suggests that customers move through a systematic series of events before they adopt a new method of operation or technology. The six stages of adoption are:

1. Unaware stage
2. Awareness stage
3. Persuasion stage (information gathering)
4. Decision stage (yes or no)
5. Implementation stage
6. Confirmation stage (behavior is reinforced or repeated).

Movement of FEMP ESPC participants through the adoption cycle

Table 90 illustrates the movement of FEMP ESPC participants in the adoption cycle for contracts in which the project costs are paid back over time from the savings. The analysis includes the period before participants heard about FEMP ESPCs and the period since they became involved with FEMP ESPCs.

Before hearing about FEMP ESPCs, 24 percent of FEMP ESPC participants were unaware of the existence of these type of contracts (unaware stage), 27 percent had just become aware of these contracts (awareness stage), 12 percent had already begun collecting information about these type of contracts (persuasion stage), 10 percent had decided to not use these contracts (decision stage), three percent had decided to use these contracts but had not implemented them yet (decision stage), seven percent had implemented these type of contracts one time (implementation stage), and 18 percent had implemented these contracts repeatedly (confirmation).

Since involvement with FEMP ESPCs, no participants remain unaware of these contracts (unaware stage) and only 10 percent indicate that they have just become aware of these contracts (awareness stage). These results indicate that FEMP ESPCs have moved about 41 percent of participants at least through the first two stages of the adoption cycle, a significant accomplishment in market transformation. More importantly perhaps, the

same type of movement also occurs on the top end of the diffusion scale. Since involvement with FEMP ESPCs, 56 percent of participants are in either the implementation or confirmation stage, compared to 25 percent before hearing about FEMP ESPCs. This means that an additional 31 percent of participants moved into either the implementation or confirmation stage as a result of FEMP ESPCs. In addition, 21 percent have decided to implement ESPC but have not done so yet. This provides an opportunity for FEMP to work with these customers to ensure that they follow-through with their decision. We also examined the 10 percent of participants who had already decided not to use performance contracting prior to their exposure to FEMP. Following their exposure to FEMP and FEMP ESPCs, 70 percent have changed their decisions and have decided to give performance contracting a try. While the number of participants in this group is small (N=10), the data indicates that FEMP ESPC programs have allowed customers who said no to the use of performance contracts to change their minds after learning about FEMP programs.

Table 90 Movement of FEMP ESPC participants through the adoption cycle

Stage of adoption	Percent of FEMP ESPC participants	
	Before hearing about ESPC	Since involvement with ESPC
Unaware	24	0
Aware	27	10
Persuasion	12	7
Decision – no	10	7
Decision – yes	3	21
Implementation	7	24
Confirmation	18	32

N=101

We also looked at differences in the movement of ESPC participants through the adoption cycle by region, responsibility, agency, and federal contractors.¹³ To facilitate presentation of the results, we concentrate on the distribution of participants who were in either the implementation or confirmation stage before hearing about FEMP ESPCs programs and since involvement with FEMP ESPCs. These results are presented in Table 91.

ESPC participants in the Philadelphia and Chicago regions have a higher level of project implementation and confirmation since their involvement with FEMP ESPCs. Participants in the Boston and Atlanta regions have somewhat lower levels. Also, participants in the Seattle region had a much lower movement compared to the other regions before hearing about FEMP ESPCs, but also had a much higher level of implementation and confirmation. ESPC participants who are people with primary operations and maintenance responsibilities had a much lower level of implementation and confirmation before hearing about ESPC, while ESPC participants who are project expeditors and people with secondary energy project responsibilities have a much higher

¹³ Refer to Chapter 1 for descriptions of these segments.

level of implementation and confirmation since their involvement with FEMP ESPCs. Participants in the DOD had a much higher level of implementation and confirmation before hearing about ESPC, while second tier agencies had a much lower level compared to other agencies.

Compared to participants in agencies, participants who are federal contractors had a much higher level of implementation and confirmation before hearing about ESPC.

Table 91 FEMP ESPC participants in the implementation or confirmation stage by region, responsibility, agency, and federal contractors

Segment	Percent of participants		Movement (difference)	N
	Before hearing about ESPC	Since involvement with ESPC		
Overall	25	56	31	101
Region				
Boston	14	43	29	7
Philadelphia	16	58	42	19
Atlanta	25	42	17	12
Chicago	21	58	37	19
Denver	25	50	25	20
Seattle	38	46	8	24
Responsibility				
Project expeditors and people with secondary energy project responsibilities	43	86	43	7
Project initiators and planners	37	60	23	30
People with primary energy project responsibilities	19	50	31	52
People with primary operations and maintenance responsibilities	8	50	42	12
Agency				
DOD	29	55	26	31
Big four	17	57	40	23
Second tier	7	37	30	27
Third tier	25	75	50	4
Federal contractors	56	81	25	16

Movement of FEMP ESPC nonparticipants who are aware of FEMP ESPCs through the adoption cycle

Table 92 illustrates the position of FEMP ESPC nonparticipants, who are aware of FEMP ESPCs, in the adoption cycle for contracts in which the project costs are paid back over time from the savings. We refer to this group as aware ESPC nonparticipants. The

analysis includes the period before these aware nonparticipants heard about FEMP ESPCs and the period since they heard about FEMP ESPCs.

Before hearing about FEMP ESPCs, 21 percent of aware ESPC nonparticipants were unaware of these type of contracts (unaware stage), 31 percent had just become aware of these contracts (awareness stage), nine percent had already begun collecting information about these contracts (persuasion stage), 14 percent had decided to not use these contracts (decision stage), eight percent had decided to use these contracts but had not yet implemented them (decision stage), four percent had implemented these contracts one time (implementation stage), and 14 percent had implemented these contracts repeatedly (confirmation).

Since hearing about FEMP ESPCs, no aware ESPC nonparticipants are unaware of these contracts (unaware stage) and 40 percent have just become aware of these contracts (awareness stage). These results indicate that 12 percent of aware ESPC nonparticipants have moved at least through the first two stages of the adoption cycle. This is significantly less than the 45 percent of ESPC participants who moved through the first two stages of the adoption cycle and supports the conclusion that FEMP ESPCs are a major factor underlying the movement of ESPC participants through the adoption cycle. Moreover, the same types of results are found on the top end of the diffusion scale. Since hearing about FEMP ESPCs, 24 percent of aware ESPC nonparticipants are in either the implementation or confirmation stage, compared to 18 percent before hearing about FEMP ESPCs. This means that an additional six percent of aware ESPC nonparticipants moved into either the implementation or conformation stage. Again, this is significantly less than the 31 percent of participants who moved through the last two stages of the adoption cycle and supports the conclusion that FEMP ESPCs are a major factor underlying the movement of federal agencies through the ESPC adoption cycle. While aware ESPC nonparticipants are moving through the ESPC adoption cycle, they are doing so much slower than ESPC participants. FEMP is significantly increasing the adoption of ESPC financing mechanisms to reduce energy consumption in federal facilities.

Table 92 Movement of aware ESPC nonparticipants through the adoption cycle

Stage of adoption	Percent of aware ESPC nonparticipants	
	Before hearing about ESPC	Since hearing about ESPC
Unaware	21	0
Aware	31	40
Persuasion	9	10
Decision – no	14	16
Decision – yes	8	9
Implementation	4	6
Confirmation	14	18

N=117

As with participants, we also looked at differences in the movement of aware ESPC nonparticipants through the adoption cycle by region, responsibility, agency, and federal contractors. These results are presented in Table 93.

Compared to other regions, the aware ESPC nonparticipants in the Atlanta region had a higher level of implementation and confirmation before hearing about ESPC. Aware ESPC nonparticipants who are people with primary operations and maintenance responsibilities and those who are project expeditors and people with secondary energy project responsibilities each had no movement with respect to implementation and confirmation after hearing about ESPC. Aware ESPC nonparticipants in the DOD had a higher level of level of implementation and confirmation before hearing about ESPC.

Compared to aware ESPC nonparticipants in agencies, those who are federal contractors had a much higher level of implementation and confirmation before hearing about ESPC.

Table 93 Aware ESPC nonparticipants in the implementation or confirmation stage by region, responsibility, agency, and federal contractors

Segment	Percent of aware ESPC nonparticipants		Movement (difference)	N
	Before hearing about ESPC	Since hearing about ESPC		
Overall	18	24	6	117
Region				
Boston	0	0	0	3
Philadelphia	20	24	4	25
Atlanta	32	41	9	22
Chicago	7	14	7	28
Denver	16	21	5	19
Seattle	20	25	5	20
Responsibility				
Project expeditors and people with secondary energy project responsibilities	22	22	0	18
Project initiators and planners	19	27	8	26
People with primary energy project responsibilities	17	26	9	54
People with primary operations and maintenance responsibilities	16	16	0	19
Agency				
DOD	19	28	9	36
Big four	15	20	5	20
Second tier	11	14	3	36
Third tier	0	0	0	7
Federal contractors	39	50	11	18

Position of FEMP ESPC nonparticipants who are unaware of FEMP ESPCs in the adoption cycle

Table 94 illustrates the position of FEMP ESPC nonparticipants, who are unaware of FEMP ESPCs, in the adoption cycle for contracts where the project costs are paid back over time from the savings. We refer to this group as unaware ESPC nonparticipants. The analysis includes only the period before these unaware ESPC nonparticipants heard about FEMP ESPCs since there can be no “after period” because these nonparticipants are unaware of FEMP ESPCs.

Sixty-three percent of unaware ESPC nonparticipants are unaware of these contracts (unaware stage), 24 percent have just become aware of these contracts (awareness stage), five percent have already begun collecting information about these contracts (persuasion stage), one percent had decided to not use these contracts (decision stage), one percent had decided to use these contracts but had not implemented them yet (decision stage), four percent have implemented these contracts one time (implementation stage), and two percent have implemented these contracts repeatedly (confirmation).

Table 94 Position of unaware ESPC nonparticipants in the adoption cycle

Stage of adoption	Percent of unaware ESPC nonparticipants
Unaware	63
Aware	24
Persuasion	5
Decision – no	1
Decision – yes	1
Implementation	4
Confirmation	2
N=188	

The position of unaware ESPC nonparticipants in the adoption cycle is significantly different from the position of ESPC participants and aware ESPC nonparticipants before they heard about FEMP ESPCs.

As with ESPC participants and aware ESPC nonparticipants, we also looked at differences in the position of unaware ESPC nonparticipants in the adoption cycle by region, responsibility, agency, and federal contractors. These results are presented in Table 95.

Unaware ESPC nonparticipants who are in the Philadelphia and Seattle regions, who are people with primary energy project responsibilities and who are people with primary operations and maintenance responsibilities, and who are in the DOD and big four agencies have a higher level of implementation and confirmation.

Compared to unaware ESPC nonparticipants in agencies, those who are federal contractors have lower level of implementation and confirmation.

Table 95 Unaware ESPC nonparticipants in the implementation or confirmation stage by region, responsibility, agency, and federal contractors

Segment	Percent of unaware ESPC nonparticipants	N
Overall	6	188
Region		
Boston	0	6
Philadelphia	16	37
Atlanta	0	13
Chicago	1	94
Denver	6	17
Seattle	14	21
Responsibility		
Project expeditors and people with secondary energy project responsibilities	0	47
Project initiators and planners	0	33
People with primary energy project responsibilities	16	45
People with primary operations and maintenance responsibilities	6	63
Agency		
DOD	12	57
Big four	12	25
Second tier	0	64
Third tier	8	13
Federal contractors	0	29

Implementation of delivery orders or contracts through FEMP ESPCs

ESPC participants were asked about their progress with respect to implementing a delivery order or contract through the FEMP ESPC program. These results are presented in Table 96. Forty-five percent have implemented one or more delivery orders or contracts, 23 percent have developed internal plans, budgets, or procedures to implement a delivery order or contract, four percent have made a decision to implement a delivery order but have not done so yet, four percent have made a decision to not implement a delivery order, 10 percent have continued the activity of searching for or acquiring information about implementing a delivery order or contract, and 15 percent have not continued actively search for or acquire information.

Table 96 Level of implementation among ESPC participants

Level of implementation through ESPC	Percent of ESPC participants
Implemented one or more delivery orders or contracts	45
Developed internal plans, budgets, or procedures to implement a delivery order or contract	23
Made a decision to implement a delivery order or contract	4
Made decision to not implement a delivery order or contract	4
Continued to actively search for or acquire information about implementing a delivery order or contract	10
Have not continued to actively search for or acquire information about implementing a delivery order or contract	15

N=101

The number of delivery orders or contracts implemented through FEMP ESPCs is presented in Table 97. Among ESPC participants who have implemented ESPC delivery order or contracts through FEMP ESPCs, an average of 4.9 delivery orders or contracts have been implemented. In a typical year, these ESPC participants implement an average of 2.9 delivery orders or contracts through the program.

Table 97 Number of delivery orders or contracts participants have implemented through FEMP ESPCs

	Mean	N
Overall number of delivery orders or contracts participants have implemented through FEMP ESPCs	4.9	43
Number of delivery orders or contracts participants implement through FEMP ESPCs in a typical year	2.9	38

We also looked at differences in the implementation of delivery orders or contracts by ease of use as well as by region, responsibility, agency, and federal contractors. These results are presented in Table 98.

As expected, ESPC participants who found FEMP ESPCs easy to use are more likely to have implemented delivery orders or contracts and have implemented more delivery orders or contracts on average. Participants who are in the Chicago region,

who are project expeditors and people with secondary energy project responsibilities, and who are in the DOD and big four agencies have the highest level of implementation of delivery orders or contracts.

Compared to ESPC participants in agencies, those who are federal contractors have a higher level of implementation of delivery orders or contracts.

Table 98 Level of implementation among ESPC participants by ease of use, region, responsibility, agency, and federal contractors

Segment	Implemented one or more delivery orders or contracts		Overall number of delivery orders or contracts implemented through ESPC	
	Percent	N	Mean	N
Overall	45	101	4.9	43
Ease of use				
Difficult to use	38	39	2.1	15
Easy to use	60	40	6.5	23
Region				
Boston	43	7	1.0	3
Philadelphia	47	19	3.4	8
Atlanta	33	12	6.5	4
Chicago	53	19	9.3	10
Denver	40	20	2.4	8
Seattle	46	24	4.1	10
Responsibility				
Project expeditors and people with secondary energy project responsibilities	86	7	6.2	6
Project initiators and planners	47	30	7.8	13
People with primary energy project responsibilities	39	52	3.2	20
People with primary operations and maintenance responsibilities	42	12	2.0	4
Agency				
DOD	42	31	3.8	11
Big four	48	23	4.1	11
Second tier	33	27	1.6	9
Third tier	50	4	1.5	2
Federal contractors	63	16	10.5	10

Influence of FEMP ESPCs on how financing for major energy projects is obtained

Table 99 presents the influence of ESPC on how financing for major energy projects is obtained. As expected, ESPC participants are much more influenced by FEMP ESPCs in the way that they obtain financing for major energy projects than aware ESPC nonparticipants. On average, ESPC participants rate the influence of ESPC at 6.6 on a

10-point scale, where 10 is very influential, compared to 2.4 for aware ESPC nonparticipants.

Table 99 Influence of ESPC on how financing for major energy projects is obtained

Level of influence	Percent of ESPC participants (N=91)	Percent of aware ESPC nonparticipants (N=103)
10	30	2
9	4	0
8	23	4
7	6	6
6	2	4
5	8	4
4	2	3
3	2	6
2	6	9
1	18	63
Mean	6.6	2.4

To understand these results better, we looked at the average rating for ESPC influence by the stage of adoption, ease of use, region, responsibility, agency, and federal contractors. These results are presented in Table 100.

Those in the implementation and confirmation stages of adoption and those who think that ESPC is easy to use, rate the influence of ESPC higher. ESPC participants in the Chicago and Atlanta regions rate the influence of ESPC lower. ESPC participants who are people with primary operations and maintenance responsibilities rate the influence of ESPC higher. ESPC participants in the big 4 agencies rate the influence of ESPC higher.

ESPC participants who are federal contractors rate the influence of ESPC lower compared to participants in agencies.

Table 100 Influence of ESPC on how financing for major energy projects is obtained by stage of adoption, ease of use, region, responsibility, agency, and federal contractors

Segment	ESPC participants		Aware ESPC nonparticipants	
	Mean	N	Mean	N
Overall	6.6	91	2.4	103
Stage of adoption				
Aware	3.8	6	1.6	38
Persuasion	5.8	5	3.7	10
Decision – no	3.9	7	1.8	19
Decision – yes	6.7	21	2.8	8
Implementation	7.3	20	3.6	7
Confirmation	7.2	32	3.5	21
Ease of use				
Difficult to use	6.3	36	2.0	49
Easy to use	7.3	38	2.7	21
Region				
Boston	7.9	7	1.5	2
Philadelphia	7.3	18	3.1	22
Atlanta	5.6	10	1.9	18
Chicago	4.9	17	2.5	23
Denver	6.8	16	2.5	18
Seattle	7.0	23	2.4	20
Responsibility				
Project expeditors and people with secondary energy project responsibilities	5.8	6	1.4	12
Project initiators and planners	6.0	26	2.4	23
People with primary energy project responsibilities	6.7	47	2.7	50
People with primary operations and maintenance responsibilities	7.4	12	2.6	18
Agency				
DOD	6.3	27	2.4	34
Big four	8.6	22	3.1	14
Second tier	5.8	24	1.9	32
Third tier	6.5	4	2.3	7
Federal contractors	5.2	14	3.0	16

The use of SAVEnergy Audits by ESPC participants is presented in Table 101. Among ESPC participants who have implemented one or more delivery orders or contracts through ESPC, 24 percent have used FEMP SAVEnergy Audits to make decisions about which technologies to include or exclude in delivery orders or contracts.

Table 101 Use of SAVEnergy Audits by ESPC participants

	Percent of ESPC participants who have implemented one or more delivery orders or contracts through ESPC
Used SAVEnergy Audit to make decisions about which technologies to include or exclude in delivery orders or contracts	24

N=45

Provided colleagues with information about FEMP ESPCs

The extent to which ESPC participants and the aware nonparticipants provide colleagues with information about ESPC is presented in Table 102. Eighty-one percent of ESPC participants and 45 percent of the aware ESPC nonparticipants provide colleagues with information about FEMP ESPCs. Of those who provide colleagues with information, 88 percent of ESPC participants and 100 percent of the aware ESPC nonparticipants provide information to colleagues within their organization, and 59 percent of ESPC participants and 38 percent of aware ESPC nonparticipants provide information to colleagues outside of their organization. On average, ESPC participants provide information to about 47 colleagues within their organization and 43 colleagues outside of their organization, while aware ESPC nonparticipants provide information about 33 colleagues within their organization and 12 colleagues outside of their organization. This data indicates that ESPC participants and aware ESPC nonparticipants share ESPC information both inside and outside of their organization.

Table 102 Provided colleagues with information about ESPC

Provision of information	ESPC participants		Aware ESPC nonparticipants	
	Percent	N	Percent	N
Provided colleagues with information about ESPC	81	101	45	117
Provided colleagues within organization with information about ESPC (% of those who provide colleagues with information)	88	82	100	53
Provided colleagues outside of organization with information about ESPC (% of those who provide colleagues with information)	59	82	38	53
Mean number of people within organization with whom shared information	46.7	72	33.4	53
Mean number of people outside of organization with whom shared information	43.1	73	12.0	49

To understand these results better, we looked at distribution of those who provided information to colleagues by the stage of adoption, ease of use, region, responsibility, agency, and federal contractors. These results are presented in Table 103.

ESPC participants and aware ESPC nonparticipants who are in the awareness stage are less likely to provide information to colleagues, as they have yet to fully understand ESPC themselves. ESPC participants and aware ESPC nonparticipants who think that ESPC is easy to use are more likely to provide information to colleagues.

ESPC participants in the Philadelphia region are more likely to provide information to colleagues while those in the Boston, Seattle, and Atlanta regions are less likely. ESPC participants who are people with primary operations and maintenance responsibilities are more likely to provide information to colleagues. ESPC participants who are in the DOD are somewhat less likely to provide information to colleagues.

Table 103 Provided colleagues with information about ESPC by stage of adoption, ease of use, region, responsibility, agency, and federal contractors

Segment	ESPC participants		Aware ESPC nonparticipants	
	Percent	N	Percent	N
Overall	81	101	45	117
Stage of adoption				
Aware	40	10	19	47
Persuasion	86	7	58	12
Decision – no	71	7	68	19
Decision – yes	95	21	73	11
Implementation	71	24	86	7
Confirmation	94	32	48	21
Ease of use				
Difficult to use	82	39	47	55
Easy to use	93	40	57	23
Region				
Boston	71	7	33	3
Philadelphia	95	19	56	25
Atlanta	75	12	32	22
Chicago	84	19	36	28
Denver	80	20	74	19
Seattle	75	24	35	20
Responsibility				
Project expeditors and people with secondary energy project responsibilities	57	7	44	18
Project initiators and planners	73	30	50	26
People with primary energy project responsibilities	87	52	48	54
People with primary operations and maintenance responsibilities	92	12	32	19
Agency				
DOD	77	31	58	36
Big four	87	23	35	20
Second tier	89	27	39	36
Third tier	100	4	29	7
Federal contractors	63	16	50	18

Summary of findings

- FEMP ESPC services are moving federal customers through the ESPC contracting process to achieve higher levels of energy efficiency. FEMP is moving their participants through this process much faster than nonparticipants. While performance contracts are used outside of FEMP, they are used much less frequently. In addition, ESPC nonparticipants who do use performance contracts to finance

energy projects do so at a much slower pace than do ESPC participants. FEMP is significantly accelerating the federal market toward the use of performance contracts to achieve energy savings in federal facilities.

- ESPC participants rate the influence of FEMP on their decision to use performance contracts three times greater than do nonparticipants who are informed about FEMP programs.
- ESPC participants implement an average of about three delivery orders per year.
- ESPC participants share information with their colleagues and peers, multiplying the impact of FEMP marketing efforts. On average, ESPC participants share information with 47 individuals inside of their organization and 43 individuals who work in other organizations. Aware ESPC nonparticipants also share ESPC information with their peers, however at reduced levels. These data indicate that both ESPC participants and nonparticipants share information with their peers, substantially increasing visibility of FEMP ESPC programs in the federal market.

Recommendations

- Continue successful efforts to accelerate the federal market toward the use of performance contracts to achieve energy savings in federal facilities.
- Develop marketing strategies that emphasize customer referrals and networking. These strategies will be effective at increasing awareness and use of FEMP ESPCs due to the high satisfaction levels among FEMP customers and the fact that both ESPC participants and nonparticipants share information with their peers, substantially increasing visibility of FEMP ESPC programs in the federal market.

7. FEMP ESPC Market Issues

Market issues pertaining to FEMP ESPCs and Super-ESPCs (referred to collectively as FEMP ESPCs in the remainder of this chapter) are presented in this chapter. These issues include continued and potential use of ESPC, reasons for using ESPC, ease in using financing through ESPC, barriers to using ESPC, and the types of people FEMP should approach when promoting ESPC.

Continued and potential use of FEMP ESPCs

To assess future interest and use in ESPC, we asked ESPC participants to rate their likelihood of continued use of ESPCs, and we asked ESPC nonparticipants to rate their likelihood of potential use of ESPCs. The ratings were on a 1 to 10 scale, where 1 meant very unlikely and 10 meant very likely to continue using or to use. The results are presented in Table 104.

Seventy-four percent of ESPC participants rate their likelihood to continue using FEMP ESPCs at 8 or higher, a strong rating reflective of a market that wants to continue doing what it is doing. Forty-four percent of participants rate their likelihood to continue using FEMP the highest possible score of 10. On average, participants rate their likelihood to continue participation at 7.8. The results for ESPC nonparticipants are much different. For example, only 24 percent of aware ESPC nonparticipants and 23 percent of unaware ESPC nonparticipants rate their likelihood of potential use at 8 or higher, and aware nonparticipants and unaware nonparticipants, on average, rate their likelihood of potential at 4.2 and 4.0, respectively. These results suggest that once a customer uses FEMP ESPCs, the likelihood they will continue using it is relatively high. However, there are challenges facing FEMP to get nonparticipants to participate in ESPC. We discuss these challenges later in the barriers section of this chapter.

Table 104 Likelihood of continued and potential use of FEMP ESPCs

Likelihood of continued and potential use	Percent of ESPC participants (N=93)	Percent of ESPC nonparticipants	
		Aware of ESPC (N=110)	Unaware of ESPC (N=146)
10	44	11	8
9	11	3	4
8	19	10	11
7	4	6	6
6	1	2	1
5	5	10	12
4	1	6	3
3	2	12	9
2	1	8	5
1	11	34	42
Mean	7.8	4.2	4.0

We asked those who rated the likelihood of continued ESPC use at 7 or less the reasons for their rating. A summary of these results for ESPC participants, aware ESPC nonparticipants, and unaware ESPC nonparticipants are presented in Table 105, Table 106, and Table 107, respectively. More detailed responses are presented in Appendix B.

Of the 24 ESPC participants (25%) who gave a rating of 7 or less, issues regarding low payback and low cost-benefit ratios are cited most frequently.

Table 105 Reasons for rating likelihood to continue using FEMP ESPCs at 7 or less among ESPC participants

Reason	Percent of ESPC participants who gave a rating of 7 or less (N=24)
Low payback or cost-benefit ratio too low	25
Our facilities are too small	13
FEMP ESPCs are not satisfactory	8
Rules or contractual issues	8
Will finance in-house or use non-FEMP sources	8
Other	12
Don't know	25

Of the 84 aware ESPC nonparticipants (78%) who gave a rating of 7 or less, issues regarding the availability of in-house financing or use of other types of project financing/funding are mentioned most often.

Table 106 Reasons for rating likelihood to use FEMP ESPCs at 7 or less among aware ESPC nonparticipants

Reason	Percent of aware ESPC nonparticipants who gave a rating of 7 or less (N=84)
We finance in-house or use other types of financing/funding	18
Decision is made elsewhere	12
ESPCs do not meet needs	11
Facilities are too small	8
ESPCs have low paybacks or are not cost-effective	7
Have done most or all projects that we need or facilities are new	7
Don't know enough about it	7
Agency rules or management prevent or deter use of ESPC	4
FEMP procedures are too rigid or too much hassle	4
Lack funding or staff	4
Other	18
Don't know	1

Of the 112 unaware ESPC nonparticipants (78%) who gave a rating of 7 or less, issues regarding not knowing enough about ESPC, availability of in-house financing or use of other types of project financing/funding, and decisions being made elsewhere were most frequently cited.

Table 107 Reasons for rating likelihood to use FEMP ESPCs at 7 or less among unaware ESPC nonparticipants

Reason	Percent of unaware ESPC nonparticipants who gave a rating of 7 or less (N=112)
Don't know enough about it	19
We finance in-house or use other types of financing/funding	18
Decision is made elsewhere	18
No or little need for these types of contracts	15
Lack funding	5
Low payback	5
Facilities rented / leased or do not pay energy bills for facility	4
Other	15
Don't know	3

To understand these results better, we compared the average likelihood of continued use by the stage of adoption, ease of use, region, responsibility, agency, and federal contractors.¹⁴ These results are presented in Table 108.

The likelihood of continued use is higher among ESPC participants in the persuasion, implementation, and confirmation stages and lower among participants in the awareness stage. As expected, those who think that ESPC is easy to use have a higher likelihood of continued or potential use. ESPC participants in the Seattle and Philadelphia regions have a higher likelihood of continued or potential use while participants in the Atlanta and Chicago regions have a lower likelihood. Participants who are project initiators and planners and who are people with primary operations and maintenance responsibilities have a higher likelihood of continued use. The likelihood of continued use is higher among participants in the big four agencies and lower among participants in the third tier agencies.

The likelihood of continued use is higher among participants who are federal contractors than participants in agencies.

¹⁴ Refer to Chapter 1 for descriptions of these segments.

Table 108 Likelihood of continued and potential use of ESPC by stage of adoption, ease of use, region, responsibility, agency, and federal contractors

Segment	ESPC participants		ESPC nonparticipants			
	Mean	N	Mean	N	Mean	N
Overall	7.8	93	4.2	110	4.0	146
Stage of adoption						
Unaware	NA	0	NA	0	3.3	89
Aware	4.8	9	3.2	43	4.9	38
Persuasion	8.8	4	4.9	11	5.9	7
Decision – no	2.9	7	2.4	19	2.0	2
Decision – yes	8.4	21	6.6	11	1.0	1
Implementation	8.0	22	6.4	7	6.6	7
Confirmation	9.2	30	5.7	19	8.0	2
Ease of use						
Difficult to use	7.6	35	3.6	52	NA	NA
Easy to use	8.3	36	5.4	21	NA	NA
Region						
Boston	8.1	7	6.7	3	4.8	4
Philadelphia	8.3	18	4.0	23	4.0	27
Atlanta	6.9	11	4.0	22	5.5	11
Chicago	6.8	16	3.7	25	3.4	72
Denver	7.8	17	5.3	18	5.3	13
Seattle	8.4	24	3.8	19	4.6	19
Responsibility						
Project expeditors and people with secondary energy project responsibilities	7.6	7	2.9	16	2.5	35
Project initiators and planners	8.5	27	4.9	24	4.3	29
People with primary energy project responsibilities	7.3	47	4.5	51	5.7	36
People with primary operations and maintenance responsibilities	8.4	12	3.7	19	3.6	46
Agency						
DOD	7.9	30	5.0	35	4.5	44
Big four	8.1	20	3.7	18	3.6	18
Second tier	7.0	25	3.4	34	3.1	54
Third tier	6.3	3	2.7	7	3.8	9
Federal contractors	8.9	15	5.4	16	5.7	21

Reasons for using FEMP ESPCs

To assess the reasons for using FEMP ESPCs, we asked ESPC participants and aware ESPC nonparticipants¹⁵ to rate the level of influence that various reasons have in the

¹⁵ Aware ESPC nonparticipants were asked about potential reasons for participation to support market development issues for the ESPC program.

decision to use or not use FEMP ESPCs. The ratings were on a 1 to 10 scale, where 1 meant not at all a reason and 10 meant a very influential reason. The results for ESPC participants are presented in Table 109, and the results for aware ESPC nonparticipants are presented in Table 110.

ESPC participants rate the ability of ESPCs to allow energy improvements to be made (that would not have been possible without ESPCs) as the most influential reason. Eighty-two percent of participants rate the influence of this reason at 8 or higher, with 49 percent giving a rating of 10. On average, participants rate the influence of this reason at 8.5. Participants rate using ESPCs to obtain expert assistance in selecting and installing energy equipment as the least influential reason. Fifty-eight percent of participants rate the influence of this reason at 8 or higher, with 24 percent giving a rating of 10. On average, participants rate the influence of this reason at 7.1.

Table 109 Reasons for using FEMP ESPCs among participants

Level of influence	Percent of participants				
	To allow energy improvements that would not have been made without ESPCs (N=97)	To avoid going after additional appropriated funding (N=95)	To free up existing resources for other needs (N=96)	To avoid the hassle of obtaining your own financing (N=95)	To obtain expert assistance in selecting and installing energy equipment (N=99)
10	49	43	39	38	24
9	12	16	12	8	14
8	21	18	25	19	20
7	6	6	4	6	6
6	1	4	2	1	8
5	6	4	8	15	10
4	0	0	2	2	2
3	1	2	2	2	7
2	1	4	3	1	3
1	3	2	3	7	5
Mean	8.5	8.2	8.0	7.6	7.1

For all five reasons addressed in the survey, the average ratings given by aware ESPC nonparticipants are lower in magnitude than the average ratings given by ESPC participants. However, aware nonparticipants are similar to participants in that they also rate the ability of ESPCs to allow energy improvements to be made (that would not have been possible without ESPCs) as the most influential reason. Sixty-two percent of aware nonparticipants rate the influence of this reason at 8 or higher, with 34 percent giving a rating of 10. On average, aware nonparticipants rate the influence of this reason at 7.1. Aware nonparticipants rate using ESPCs to avoid the hassle of obtaining their own financing as the least influential reason. Forty-four percent of aware nonparticipants rate the influence of this reason at 8 or higher, with 23 percent giving a rating of 10. On average, aware nonparticipants rate the influence of this reason at 5.8.

Table 110 Reasons for using FEMP ESPCs among aware nonparticipants

Level of influence	Percent of aware nonparticipants				
	To allow energy improvements that would not have been made without ESPCs (N=110)	To avoid going after additional appropriated funding (N=111)	To free up existing resources for other needs (N=112)	To avoid the hassle of obtaining your own financing (N=112)	To obtain expert assistance in selecting and installing energy equipment (N=111)
10	34	27	28	23	17
9	8	6	10	9	6
8	20	17	16	12	22
7	5	10	10	5	12
6	3	2	1	2	5
5	9	5	8	11	14
4	4	2	4	5	3
3	4	5	4	9	4
2	3	5	6	5	4
1	12	20	14	21	14
Mean	7.1	6.3	6.6	5.8	6.3

To understand these results better, we compared the ratings of each reason by the stage of adoption, ease of use, region, responsibility, agency, and federal contractors. The results for ESPC participants are presented in Table 111, and the results for aware ESPC nonparticipants are presented in Table 112.

The relative influence ratings among ESPC participants segregated by stage of adoption, ease of use, region, responsibility, agency, and federal contractors are similar to the ratings among participants overall (not segregated). For instance, the ability of ESPCs to allow energy improvements to be made (that would not have been possible without ESPCs) is rated as the most influential reason within most of the segments. There are, however, some segments that rate avoiding the need to go after additional appropriated funding as the most influential reason.

Table 111 Reasons for using FEMP ESPCs among participants by stage of adoption, ease of use, region, responsibility, agency, and federal contractors

Segment	To allow energy improvements that would not have been made without ESPCs		To avoid going after additional appropriated funding		To free up existing resources for other needs		To avoid the hassle of obtaining your own financing		To obtain expert assistance in selecting and installing energy equipment	
	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N
Overall	8.5	97	8.2	95	8.0	96	7.6	95	7.1	99
Stage of adoption										
Aware	8.4	6	8.3	6	7.4	6	7.9	6	7.0	6
Persuasion	9.1	19	7.5	18	8.4	19	7.0	19	7.1	19
Decision – no	7.5	12	8.2	12	7.0	11	6.0	12	6.9	12
Decision – yes	9.1	18	7.9	18	8.6	18	8.4	18	7.6	19
Implementation	8.3	19	8.7	18	8.0	19	7.6	19	7.5	20
Confirmation	8.3	23	8.3	23	7.7	23	7.3	21	6.7	23
Ease of use										
Difficult to use	8.2	39	8.2	39	7.7	38	7.2	39	7.3	39
Easy to use	8.9	40	8.4	39	8.1	40	8.3	39	7.4	39
Region										
Boston	9.5	8	9.0	8	8.3	7	9.2	8	8.8	9
Philadelphia	9.3	7	9.4	6	8.2	7	8.3	6	7.2	7
Atlanta	8.3	6	7.8	6	8.0	6	7.6	6	7.2	7
Chicago	7.6	20	7.4	20	7.4	20	6.6	20	6.7	21
Denver	8.2	24	7.3	23	7.4	24	7.1	24	7.2	24
Seattle	8.6	32	8.7	32	8.6	32	7.7	31	6.9	31
Responsibility										
Project expeditors and people with secondary energy project responsibilities	9.1	7	7.6	7	6.6	7	6.6	7	5.6	7
Project initiators and planners	8.4	30	8.1	29	7.9	29	7.2	28	6.6	29
People with primary energy project responsibilities	8.4	48	8.5	47	8.1	48	7.7	48	7.6	51
People with primary operations and maintenance responsibilities	8.7	12	8.3	12	8.5	12	8.3	12	7.3	12
Agency										
DOD	8.4	31	7.5	30	7.8	31	7.2	30	7.5	30
Big four	8.9	22	8.6	22	8.4	22	8.1	22	8.6	22
Second tier	8.7	25	8.8	24	7.5	24	7.4	25	6.7	27
Third tier	9.0	4	10.0	4	9.0	4	9.8	4	9.3	4
Federal contractors	7.6	15	7.7	15	7.9	15	7.1	14	4.4	16

As with ESPC participants, the relative influence ratings among aware nonparticipants segregated by stage of adoption, ease of use, region, responsibility, agency, and federal contractors are similar to the ratings among aware ESPC nonparticipants overall (not segregated). For instance, the ability of ESPCs to allow energy improvements to be made (that would not have been possible without ESPCs) is rated as the most influential reason within most of the segments. There are, however, some segments that rate freeing up existing resources for other needs and avoiding the hassle of obtaining financing on their own as the most influential reasons.

Table 112 Reasons for using FEMP ESPCs among aware nonparticipants by stage of adoption, ease of use, region, responsibility, agency, and federal contractors

Segment	To allow energy improvements that would not have been made without ESPCs		To avoid going after appropriated funding		To free up existing resources for other needs		To avoid the hassle of obtaining your own financing		To obtain expert assistance in selecting and installing energy equipment	
	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N
Overall	7.1	110	6.3	111	6.6	112	5.8	112	6.3	111
Stage of adoption										
Aware	6.6	44	5.5	44	6.2	45	5.2	44	5.8	44
Persuasion	8.4	10	7.6	11	8.0	11	6.9	12	7.5	11
Decision – no	6.0	18	5.5	18	5.4	18	5.2	18	6.3	18
Decision – yes	8.4	11	7.3	11	7.0	11	6.7	11	6.6	11
Implementation	8.9	7	7.1	7	8.6	7	8.3	7	8.1	7
Confirmation	7.0	20	7.0	20	6.9	20	5.4	20	5.8	20
Ease of use										
Difficult to use	6.8	53	5.8	53	6.3	54	5.4	54	6.2	54
Easy to use	7.4	22	6.4	23	6.5	23	5.4	22	6.1	23
Region										
Boston	7.0	3	7.3	3	7.3	3	8.7	3	8.3	3
Philadelphia	6.5	22	6.2	23	7.0	23	5.0	24	5.2	23
Atlanta	7.5	21	6.8	21	7.1	21	5.9	21	5.7	21
Chicago	7.0	27	6.6	27	6.5	28	5.0	27	6.9	27
Denver	7.3	18	6.6	18	6.1	18	6.4	18	7.2	18
Seattle	7.2	19	4.8	19	6.2	19	6.5	19	6.0	19
Responsibility										
Project expeditors and people with secondary energy project responsibilities	5.9	15	5.4	14	6.6	15	4.8	16	5.9	14
Project initiators and planners	6.9	26	6.8	26	6.8	26	5.8	26	6.2	26
People with primary energy project responsibilities	7.5	52	6.5	54	6.9	54	6.3	53	6.4	54
People with primary operations and maintenance responsibilities	7.0	17	5.4	17	5.4	17	4.9	17	6.2	17
Agency										
DOD	7.3	35	6.0	34	6.6	34	5.6	35	5.9	35
Big four	8.1	19	6.6	19	6.7	19	5.8	18	7.0	18
Second tier	6.6	34	6.2	34	6.3	35	6.0	35	6.6	34
Third tier	6.3	4	6.7	6	6.8	6	5.5	6	6.2	6
Federal contractors	6.5	18	6.4	18	7.0	18	5.7	18	5.5	18

Ease in using financing through FEMP ESPCs

To assess the ease of using FEMP ESPCs, we asked ESPC participants and aware ESPC nonparticipants to rate how difficult or easy they think it is to use financing through FEMP ESPCs. Respondents could give the following five ratings: very difficult, somewhat difficult, neither easy nor difficult, somewhat easy, or very easy. The results are presented in Table 113.

Sixty-one percent of aware ESPC nonparticipants think that it is somewhat difficult (29%) or very difficult (32%) to use financing through FEMP ESPCs. While the level of difficulty expressed by participants is lower (as one would expect given their experience with the program), the levels are higher than expected. Forty-six percent of ESPC participants think that it is somewhat difficult (36%) or very difficult (7%) to use financing through FEMP ESPCs. These results indicate that the difficulties associated with using FEMP ESPCs are a significant barrier for federal agencies. These barriers are discussed in the next section.

Table 113 Ease in using financing through FEMP ESPCs

Level of ease / difficulty	Percent of ESPC participants (N=85)	Percent of aware ESPC nonparticipants (N=90)
Very difficult	7	32
Somewhat difficult	39	29
Neither easy or difficult	7	13
Somewhat easy	34	20
Very easy	13	6

We asked those who said that FEMP ESPCs were somewhat or very difficult to use the reasons for their rating. A summary of these results for ESPC participants and aware ESPC nonparticipants are presented in Table 114. More detailed responses are presented in Appendix B.

Of the 39 ESPC participants (46%) who said that FEMP ESPCs are somewhat or very difficult to use, issues regarding the FEMP ESPC process being too time consuming and too much red tape and bureaucracy are cited most frequently. Of the 55 aware ESPC nonparticipants (61%) who said that FEMP ESPCs are somewhat or very difficult to use, issues regarding too much red tape and bureaucracy and not knowing enough about FEMP ESPCs are mentioned most often.

Table 114 Reasons for rating FEMP ESPCs as difficult to use

Reason	Percent of ESPC participants who rated as difficult to use (N=39)	Percent if aware ESPC nonparticip ants who rated as difficult to use (N=55)
ESPC process is too time consuming and slow	23	2
Too much red tape and bureaucracy	23	24
Inter-organizational agreement and coordination is difficult / lack of agreement from everyone involved on what is needed	10	0
Facilities are too small	8	2
Don't know enough about it	8	18
Fear savings will not materialize	5	0
Management does not like change or is skeptical	5	4
Funding for ESPCs is lacking	3	2
Rules and regulations are too restrictive	3	7
Fear of signing long-term contracts and M&V afterwards	3	2
Bad experiences with this type of financing in the past	0	6
ESPCs require approval and involvement of outside organizations	0	9
FEMP procedures are too rigid	0	6
We finance in house	0	4
Other	10	16

To understand these results better, we looked at distribution of those who thought that ESPC was difficult to use by stage of adoption, region, responsibility, agency, and federal contractors. These results are presented in Table 115.

ESPC participants in the persuasion stage and aware ESPC nonparticipants in the awareness stage are more likely to think that FEMP ESPCs are difficult to use. Participants in the Atlanta region and aware nonparticipants in the Seattle region are more likely to think that FEMP ESPCs are difficult to use. Participants and aware nonparticipants who are people with primary operations and maintenance responsibilities are more likely to think that ESPC is difficult to use. Participants and aware nonparticipants in the second tier agencies are more likely to think that ESPC is difficult to use.

Table 115 Percent rating use of financing through ESPC as difficult by stage of adoption, region, responsibility, agency, and federal contractors

Segment	ESPC participants		Aware of ESPC nonparticipants	
	Percent rating as difficult to use	N	Percent rating as difficult to use	N
Overall	46	85	61	90
Stage of adoption				
Aware	50	6	72	32
Persuasion	100	5	43	7
Decision – no	40	5	77	17
Decision – yes	47	19	64	11
Implementation	45	20	29	7
Confirmation	37	30	44	16
Region				
Boston	40	5	33	3
Philadelphia	38	16	29	17
Atlanta	64	11	60	15
Chicago	38	16	69	26
Denver	47	15	67	15
Seattle	50	22	86	14
Responsibility				
Project expeditors and people with secondary energy project responsibilities	50	6	46	11
Project initiators and planners	35	26	65	20
People with primary energy project responsibilities	43	44	60	45
People with primary operations and maintenance responsibilities	89	9	71	14
Agency				
DOD	40	25	52	31
Big four	38	21	64	14
Second tier	63	24	81	27
Third tier	0	3	40	5
Federal contractors	50	12	46	13

Barriers to using FEMP ESPCs

To assess the barriers to using FEMP ESPCs, we asked ESPC participants and aware ESPC nonparticipants to rate the level of influence that various barriers have to the use of FEMP ESPCs. The ratings were on a 1 to 10 scale, where 1 meant not at all a barrier and 10 meant a very substantial barrier. The results for ESPC participants are presented in Table 116, and the results for aware ESPC nonparticipants are presented in Table 117.

The average ratings given by ESPC participants are less than six for all eight of the barriers addressed by the survey. ESPC participants rate the length of the term for delivery orders or contracts being too long as the most substantial barrier. Thirty percent

of participants rate the influence of this barrier at 8 or higher, with 11 percent giving a rating of 10. On average, participants rate the influence of this barrier at 5.2. Participants rate the possibility of their organization moving from the building as the least substantial barrier. Sixty-four percent of participants rate the influence of this barrier at 3 or lower, with 50 percent giving a rating of 1. On average, participants rate the influence of this barrier at 3.4.

Table 116 Barriers to using FEMP ESPCs among ESPC participants

Level of influence	Percent of ESPC participants							
	Length of the term for delivery orders or contracts is too long (N=93)	Process is too complex (N=92)	FEMP up-front fees are too high (N=76)	It means involving an outside agency in contracti ng process (N=96)	Think that facilities are already energy efficient (N=97)	Not enough choice in the contracto r that can be used (N=93)	Not believe that the technolo gies will deliver enough savings (N=96)	Organiza tion might move from the building (N=94)
10	11	5	7	8	6	10	7	9
9	7	1	7	4	1	0	2	5
8	12	12	7	4	8	7	8	4
7	8	12	5	6	6	4	4	1
6	7	8	8	5	8	4	2	3
5	14	25	15	12	11	10	15	9
4	9	5	7	8	8	4	5	4
3	9	5	12	10	6	16	7	9
2	9	10	9	12	12	18	16	6
1	17	16	25	30	32	27	33	50
Mean	5.2	4.9	4.4	4.0	4.0	3.8	3.8	3.4

As with participants, the average rating given by aware ESPC nonparticipants was less than six for all eight of the barriers addressed by the survey. Aware nonparticipants rate the complexity of the ESPC process and FEMP up-front fees being too high as the two most substantial barriers. Twenty-six percent of aware nonparticipants rate the influence of the complexity of the ESPC process at 8 or higher, with 12 percent giving a rating of 10, indicating a very strong barrier for a significant portion of this group. On average, aware nonparticipants rate the influence of this barrier at 5.5. Twenty-six percent of aware nonparticipants rate the influence of FEMP up-front fees being too high at 8 or higher, with 15 percent giving a rating of 10, again, a strong barrier for a portion of this group. On average, aware nonparticipants rate the influence of this barrier at 5.4. Aware nonparticipants rate the possibility of their organization moving from the building as the least substantial barrier. Seventy-six percent of aware nonparticipants rate the influence of this barrier at 3 or lower, with 60 percent giving a rating of 1. On average, aware nonparticipants rate the influence of this barrier at 2.7.

Table 117 Barriers to using FEMP ESPCs among aware ESPC nonparticipants

Level of influence	Percent of aware ESPC nonparticipants							
	Length of the term for delivery orders or contracts is too long (N=97)	Process is too complex (N=96)	FEMP up-front fees are too high (N=76)	It means involving an outside agency in contracting process (N=107)	Think that facilities are already energy efficient (N=103)	Not enough choice in the contractor that can be used (N=94)	Not believe that the technologies will deliver enough savings (N=106)	Organization might move from the building (N=103)
10	11	12	15	18	15	6	9	4
9	1	4	3	1	2	1	3	2
8	8	10	8	5	9	6	11	6
7	9	12	7	9	1	5	5	2
6	6	12	7	3	6	4	4	1
5	19	22	30	13	16	22	10	8
4	3	7	8	4	7	1	3	2
3	8	2	5	11	4	10	9	5
2	12	5	4	7	13	10	12	11
1	22	15	15	30	29	34	33	60
Mean	4.7	5.5	5.4	4.6	4.5	3.9	4.2	2.7

To understand these results better, we compared the ratings on the influence of each barrier by the stage of adoption, ease of use, region, responsibility, agency, and federal contractors. These results for ESPC participants are presented in Table 118, and the results for aware ESPC nonparticipants are presented in Table 119.

The relative influence ratings among ESPC participants segregated by stage of adoption, ease of use, region, responsibility, agency, and federal contractors are similar to the ratings among participants overall (not segregated). For instance, the length of the term for delivery orders or contracts being too long is rated as the most substantial barrier within most of the segments. There are, however, some segments that rate FEMP up-front fees being too high, complexity of the process, and the involvement of outside agencies as the most substantial barriers.

Table 118 Barriers to using FEMP ESPCs among ESPC participants by stage of adoption, ease of use, region, responsibility, agency, and federal contractors

Segment	Length of the term for delivery order or contract is too long		Process is too complex		FEMP up-front fees are too high		It means involving an outside agency in contracting process		Think that facilities are already energy efficient		Not enough choice in the contractor that can be used		Not believe that the technologies will deliver enough savings		Organizations might move from the building	
	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N
Overall	5.2	93	4.9	92	4.4	76	4.0	96	4.0	97	3.8	93	3.8	96	3.4	94
Stage of adoption																
Aware	6.6	7	5.8	6	5.8	8	4.3	7	6.0	8	4.3	8	3.4	7	3.5	6
Persuasion	6.8	6	5.8	6	7.0	2	3.9	7	2.7	7	3.7	6	4.7	7	4.2	6
Decision – no	3.5	6	3.6	5	5.6	5	3.7	7	4.4	7	3.6	5	2.7	7	1.4	7
Decision – yes	5.2	19	4.6	20	3.4	15	3.4	20	3.9	20	3.0	20	3.3	20	2.9	20
Implementation	5.0	24	4.8	24	4.7	19	5.1	24	3.5	24	5.0	22	4.3	23	4.0	24
Confirmation	5.0	31	5.0	31	3.9	27	3.7	31	4.0	31	3.5	32	3.9	32	3.6	31
Ease of use																
Difficult to use	5.3	38	6.2	38	5.0	29	5.1	37	4.5	38	4.1	39	4.5	38	4.1	38
Easy to use	5.4	39	4.2	40	3.9	37	3.3	40	3.6	40	3.6	40	3.4	39	3.5	40
Region																
Boston	5.2	6	4.8	6	4.3	4	3.0	6	4.7	6	2.8	5	4.8	6	2.7	6
Philadelphia	5.1	18	4.8	19	4.7	15	4.2	19	4.4	19	3.2	18	2.4	18	2.7	19
Atlanta	5.6	12	4.7	10	5.2	10	3.1	11	4.3	12	2.6	11	2.8	11	3.2	11
Chicago	5.8	17	5.8	16	4.6	14	4.1	17	3.5	18	4.4	18	3.2	18	2.9	16
Denver	4.2	18	3.9	18	4.1	13	2.7	19	2.8	18	3.5	18	4.2	19	3.1	18
Seattle	5.3	22	5.2	23	3.9	20	5.6	24	4.4	24	4.8	23	5.2	24	4.9	24
Responsibility																
Project expeditors and people with secondary energy project responsibilities	5.0	6	6.0	7	4.4	7	4.9	7	4.0	7	2.6	7	4.3	7	4.9	7
Project initiators and planners	6.2	29	5.6	28	3.9	24	3.8	29	3.5	30	4.2	29	4.2	29	3.4	28
People with primary energy project responsibilities	4.8	46	4.2	45	4.7	38	3.9	49	4.4	48	3.8	47	3.6	48	3.4	47
People with primary operations and maintenance responsibilities	4.2	12	5.2	12	4.3	7	4.7	11	3.5	12	3.6	10	3.5	12	2.7	12
Agency																
DOD	5.0	30	4.6	28	3.8	20	4.3	31	4.0	31	4.2	29	3.6	31	3.4	29
Big four	4.3	22	4.6	22	3.4	18	3.0	21	3.3	22	3.2	21	3.3	22	3.1	22
Second tier	5.1	23	5.3	24	4.6	23	3.7	25	3.9	26	3.4	25	3.8	24	3.9	25
Third tier	4.5	4	3.0	4	7.7	3	5.8	4	5.8	4	2.7	3	1.3	4	1.0	4
Federal contractors	7.2	14	5.7	14	5.8	12	5.1	15	4.6	14	4.7	15	5.7	15	3.7	14

As with participants, the relative influence ratings among aware ESPC nonparticipants segregated by stage of adoption, ease of use, region, responsibility, agency, and federal contractors are similar to the ratings among aware ESPC nonparticipants (not segregated). For instance, the complexity of the ESPC process and FEMP up-front fees being too high are rated as the two most substantial barriers within most of the segments. There are, however, some segments that rate the length of the term for delivery orders or

contracts being too long, the involvement of outside agencies, facilities already being energy efficient, and not enough choice in contractors among the two most substantial barriers.

Table 119 Barriers to using FEMP ESPCs among aware ESPC nonparticipants by stage of adoption, ease of use, region, responsibility, agency, and federal contractors

Segment	Length of the term for delivery orders or contracts is too long		Process is too complex		FEMP up-front fees are too high		It means involving an outside agency in contracting process		Think that facilities are already energy efficient		Not enough choice in the contractor that can be used		Not believe that the technologies will deliver enough savings		Organization might move from the building	
	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N
Overall	4.7	97	5.5	96	5.4	76	4.6	107	4.5	103	3.9	94	4.2	106	2.7	103
Stage of adoption																
Aware	4.7	40	5.7	37	4.8	26	4.5	44	5.0	43	4.3	40	4.2	43	2.6	42
Persuasion	4.1	8	5.8	9	5.0	7	4.0	8	3.8	9	2.8	6	5.1	9	3.8	9
Decision – no	3.7	17	5.4	16	5.6	14	5.1	17	4.7	17	2.8	16	2.8	16	2.9	16
Decision – yes	6.9	8	6.6	10	5.9	7	6.2	11	4.4	9	6.1	8	4.6	11	2.3	10
Implementation	4.4	7	3.3	7	5.3	6	4.0	7	2.4	7	2.4	7	3.3	7	1.3	6
Confirmation	5.0	17	5.6	17	6.2	16	4.2	20	4.2	18	3.8	17	4.8	20	2.6	20
Ease of use																
Difficult to use	5.1	49	6.3	51	5.8	38	4.6	54	4.5	52	4.0	48	4.3	53	2.8	53
Easy to use	4.5	21	4.5	22	4.9	19	5.3	22	3.8	23	4.1	21	4.3	23	2.1	22
Region																
Boston	4.7	3	5.7	3	4.7	3	5.3	3	4.0	3	4.3	3	4.3	3	2.7	3
Philadelphia	5.2	20	5.9	20	4.8	17	5.6	20	3.7	21	3.5	18	4.5	21	3.9	21
Atlanta	3.4	16	4.7	17	6.7	12	3.5	19	5.1	18	3.7	17	4.4	20	2.1	18
Chicago	4.7	26	5.1	24	4.7	18	4.1	28	5.7	27	4.6	24	4.4	27	2.4	27
Denver	4.5	14	5.4	14	6.0	13	4.2	18	3.5	17	4.4	14	2.8	16	2.6	16
Seattle	5.3	18	6.6	18	5.5	13	5.8	19	3.7	17	2.9	18	4.3	19	2.2	18
Responsibility																
Project expeditors and people with secondary energy project responsibilities	5.6	11	5.9	10	6.3	8	5.5	14	4.5	13	4.4	10	5.9	13	4.3	12
Project initiators and planners	5.8	22	5.6	23	5.1	22	4.3	24	4.1	22	3.9	23	3.6	24	1.8	23
People with primary energy project responsibilities	4.0	48	5.6	47	5.5	35	4.7	52	4.6	53	3.2	44	4.0	52	2.8	51
People with primary operations and maintenance responsibilities	4.6	16	5.2	16	4.8	11	4.2	17	4.5	15	5.2	17	4.1	17	2.1	17
Agency																
DOD	4.7	27	4.4	30	5.6	22	4.1	34	4.9	32	3.0	29	4.1	33	1.9	32
Big four	3.7	17	4.9	15	4.5	10	3.9	18	4.1	18	3.3	16	3.9	18	1.9	17
Second tier	4.8	33	6.5	30	5.2	29	5.0	34	3.9	33	4.1	30	4.2	33	3.0	34
Third tier	5.3	6	5.3	6	6.0	3	4.7	6	6.4	7	5.8	5	5.2	6	2.7	6
Federal contractors	5.2	14	6.7	15	6.1	12	5.7	15	4.1	13	4.9	14	4.0	16	4.6	14

Types of people FEMP should approach when promoting ESPC

To provide FEMP input for use in ESPC promotion, we asked ESPC participants and aware ESPC nonparticipants to provide the titles of people in their organization that FEMP should approach when promoting ESPC. These results are presented in Table 120.

Both participants and aware nonparticipants most frequently recommend facility-related managers, administrators, and supervisors; engineers; and energy or environmental managers and coordinators as the best types of people for FEMP to approach when promoting ESPC.

Table 120 Types of people FEMP should approach when promoting ESPC

Type / Title	Percent of ESPC participants (N=115)	Percent of aware ESPC nonparticip ants (N=121)
Facility-related Managers, Administrators, and Supervisors	27	23
Engineers	16	24
Energy or Environmental Managers and Coordinators	15	12
Chief Executive Officers / Chief Operating Officers / Directors	11	3
General or Project Managers	9	3
Administrators	4	2
Contracting / Procurement / Purchasing Officers and Agents	4	3
Marketing / Sales Managers	4	2
Presidents / Vice Presidents	4	4
Chief Financial Officers	2	3
Commanding Officers	2	3
Superintendents	2	1
Other	9	10
Don't know/refused	5	11

Adds to more than 100% due to multiple responses

Summary of findings

- A large majority of ESPC participants says they plan to continue using FEMP ESPCs. Once a federal agency becomes an ESPC participant, the probability that they will continue to participate is very high. However, there are significant barriers associated with obtaining new participants.
- The more important reasons for using FEMP ESPCs include the ability to obtain energy efficiency improvements and equipment that could not be made without

ESPC, to avoid going after additional federal appropriations, and to free up existing resources.

- Both ESPC participants and nonparticipants who are aware of FEMP ESPCs report that using FEMP ESPCs is difficult. This is especially true for customers who have not yet implemented a delivery order and for customers just becoming or considering use of ESPCs.
- There are substantial barriers to using FEMP ESPCs. Among the most important are the length of the contract / delivery order, the perceived complexity of the process, high user fees, the involvement of outside agencies, the belief that their facilities are already efficient, and lack of confidence in the estimated savings.
- ESPC participants suggest that FEMP target program marketing materials at facility-related managers, administrators, and supervisors; engineers; and energy or environmental managers and coordinators.

Recommendations

- Continue successful efforts to maintain awareness and use of FEMP ESPCs. These efforts should utilize more extensive customer follow-up because once a federal agency becomes an ESPC participant, the probability that they will continue to participate is very high.
- The ESPC participation process needs to be streamlined. The streamlining needs to focus on the ease of participation and faster, less time-consuming procedures. Participants and potential participants need to view the ESPC process as fast, easy and efficient, consuming as little of their time and effort as possible.
- Marketing for the ESPC program should highlight the program's ability to (1) obtain energy efficiency improvements and equipment that could not be made without ESPC, (2) avoid going after additional federal appropriations, and (3) free up existing resources.
- Target program marketing materials at facility-related managers, administrators, and supervisors; engineers; and energy or environmental managers and coordinators.
- Conduct more in-depth customer evaluations that focus specifically on obtaining more detailed information on the barriers to using ESPCs and the ways that these barriers can be overcome. This information can then be used by FEMP to develop and test operational designs and procedures to help eliminate these barriers. This can be accomplished through the use of focus groups or in-depth interviews with key participants and nonparticipants.

8. FEMP ESPC Process Issues

Process issues pertaining to FEMP ESPCs and Super-ESPCs (referred to collectively as FEMP ESPCs in the remainder of this chapter) are presented in this chapter. These issues include ESPC delivery order/contract term length, satisfaction with aspects of ESPC, and suggestions for FEMP to improve ESPC.

FEMP ESPC delivery order/contract term length

To assess the term lengths of FEMP ESPC delivery orders/contracts, we asked FEMP ESPC participants what they think the ideal term length is and what is the maximum term length they would be willing to accept. These results are presented in Table 121.

Seventy-one percent of all ESPC participants report an ideal contract length of 10 years or less. On average, participants report about 9 years as the ideal term length and 13 years as the maximum term length that they are willing to accept. The most common response (mode) given for the ideal term length is 10 years while the most common response given for the maximum term length is 15 years.

FEMP managers estimate that the current FEMP ESPC contract periods average about 15 years in length, about six years longer than what the average ESPC participant wants. This indicates that FEMP contract periods are inconsistent with the administrative and management needs of the agencies they serve. These findings are consistent with the verbal comments provided by participants that focused on the rigidity or the participation requirements associated with the ESPC program. FEMP should consider the impacts of structuring contract periods to allow for more flexible contract lengths. This will allow agencies to tailor their contract terms to their individual agency needs. Having this option will require technology mixes that support shorter contract periods and may act to reduce the energy savings associated with the current ESPC contracts. However, it will make the contract periods more consistent with the needs of the customer and will act to reduce a key program participation barrier.

Table 121 FEMP ESPC delivery order/contract term length among participants

Years	Percent of ESPC participants	
	Ideal term length (N=85)	Maximum term length (N=89)
1	22	11
2	4	3
3	1	5
5	9	5
6	2	0
7	6	0
8	1	1
9	1	0
10	25	18
12	6	0
13	0	1
15	13	21
16	1	0
18	0	2
20	2	17
23	0	3
25	6	12
Mean	8.8	13.4

To understand these results better, we compared the ideal and maximum term lengths by region and responsibility.¹⁶ These results are presented in Table 122 and Table 123.

Participants in the Boston region report lower ideal and maximum term lengths. Participants in the Denver region report higher ideal term lengths while participants in the Chicago region report higher maximum term lengths.

Table 122 FEMP ESPC delivery order/contract term length among participants by region

	Ideal term length in years		Maximum term length in years	
	Mean	N	Mean	N
Overall	8.8	85	13.4	89
Region				
Boston	4.3	7	6.4	7
Philadelphia	8.9	14	13.7	15
Atlanta	8.3	10	13.2	11
Chicago	9.4	16	15.7	17
Denver	10.7	18	14.1	18
Seattle	8.3	20	13.2	21

Participants who are people with primary operations and maintenance responsibilities report lower ideal and maximum term lengths, while participants who are project

¹⁶ Refer to Chapter 1 for descriptions of these segments.

expeditors and people with secondary energy project responsibilities report higher ideal and maximum term lengths.

Table 123 FEMP ESPC delivery order/contract term length among participants by responsibility

	Ideal term length in years		Maximum term length in years	
	Mean	N	Mean	N
Overall	8.8	85	13.4	89
Responsibility				
Project expeditors and people with secondary energy project responsibilities	14.2	6	19.7	6
Project initiators and planners	8.1	25	14.6	26
People with primary energy project responsibilities	9.2	46	12.7	47
People with primary operations and maintenance responsibilities	4.8	8	10.2	10

Satisfaction with aspects of FEMP ESPCs

To assess satisfaction with FEMP ESPCs, we asked FEMP ESPC participants to rate their satisfaction with program follow-up and support, the amount of energy savings, and the time it takes to establish a delivery order/contract. The ratings were on a 1 to 10 scale, where 1 meant very dissatisfied and 10 meant very satisfied. The results are presented in Table 124.

ESPC participants rate satisfaction the highest for project follow-up or support from FEMP after the delivery order/contract is established. Sixty-three percent of ESPC participants rate their satisfaction with this aspect of ESPC at 8 or higher, with 15 percent giving a rating of 10. On average, participants rate their satisfaction with this aspect at 7.2. ESPC participants rate satisfaction the lowest for the period of time to establish the delivery order/contract. Forty percent of ESPC participants rate their satisfaction with this aspect of ESPC at 8 or higher, with 16 percent giving a rating of 10. On average, participants rate their satisfaction with this aspect at 6.4. Because the average satisfaction ratings are less than 8 for these aspects, FEMP managers may want to identify program design changes that can help increase agency satisfaction ratings among ESPC participants.

Table 124 Participant satisfaction with aspects of FEMP ESPCs

Satisfaction rating	Percent of ESPC participants		
	Period of time to establish the delivery order/contract (N=71)	Amount of savings through the delivery order/contract (N=63)	Project follow-up or support from FEMP after the delivery order/contract was established (N=40)
10	16	19	15
9	7	8	15
8	17	27	33
7	17	8	8
6	6	6	3
5	13	10	18
4	7	8	0
3	10	5	3
2	6	3	3
1	3	5	5
Mean	6.4	6.9	7.2

We asked ESPC participants who gave a satisfaction rating of 7 or less the reasons for their rating. A summary of these results is presented in Table 125, Table 126, and Table 127. More detailed responses are presented in Appendix B.

Of the 43 ESPC participants (62%) who gave a rating of 7 or less for period of time needed to establish an ESPC contract, issues regarding the ESPC process being too slow are cited most frequently. These results indicate that the ESPC participation process is too time consuming for a significant number of program participants and that current and potential participants need a process that consumes less of their time than the current process.

Table 125 Reasons for rating satisfaction with period of time needed to establish ESPC contract at 7 or less

Reason	Percent of ESPC participants who gave a rating of 7 or less (N=43)
ESPC process is too slow and takes too long – in general	56
ESPC process is too slow and takes too long – the project selection process too long	5
ESPC process is too slow and takes too long – takes contractors too long to understand process	2
ESPC process is too slow and takes too long – projects need approval right away	2
ESPC process is too slow and takes too long – signature gathering process too long	2
ESPC process is too slow and takes too long – too many decision makers	2
ESPC process is too slow and takes too long – decision making takes to long to get started	2
Internal organization issues were problematic	5
It was good enough	5
Low payback / savings do not appear to materialize	2
Don't know enough about it	2
Other	12
Don't know	2

Of the 28 ESPC participants (45%) who gave a rating of 7 or less for the amount of savings through the ESPC contract, issues regarding the payback being too low and the costs of using ESPC being too high are cited most frequently.

Table 126 Reasons for rating satisfaction with amount of savings through ESPC contract at 7 or less

Reason	Percent of ESPC participants who gave a rating of 7 or less (N=28)
Low payback	32
Cost of doing ESPC is high	18
Timing is slow/process takes too long	8
Savings are good	7
Don't know enough about it	7
Communications are lacking	4
Need more project choices for ESPC	4
Savings are small	4
Other	11
Don't know	7

Adds to more than 100% due to multiple responses

Of the 15 ESPC participants (40%) who gave a rating of 7 or less for FEMP project follow-up or support, issues regarding lack of follow-up support and follow-up taking too long are cited most frequently.

Table 127 Reasons for rating satisfaction with FEMP project follow-up or support at 7 or less

Reason	ESPC Participants (N=15)
Follow-up is lacking	20
Follow-up takes too long	13
Don't know enough about it	13
Follow-up was okay but could be improved	7
More technical and financial support needed	7
We do follow-up in-house	7
Other	27
Don't know	7

Although the sample sizes were very small in many of the segments, we compared the average satisfaction ratings for these aspects by region, responsibility, agency, and federal contractors to understand these results better. These results are presented in Table 128, Table 129, and Table 130.

ESPC participants in the Chicago and Atlanta regions report lower satisfaction with both the period of time to establish the delivery order/contract and FEMP project follow-up or support. Participants in the Boston region report lower satisfaction with the amount of savings through the delivery order/contract.

Table 128 Participant satisfaction with aspects of FEMP ESPC by region

	Period of time to establish the delivery order/contract		Amount of savings through the delivery order/contract		Project follow-up or support from FEMP after the delivery order/contract was established	
	Mean	N	Mean	N	Mean	N
Overall	6.4	71	6.9	63	7.2	40
Region						
Boston	7.0	4	5.4	5	6.0	1
Philadelphia	6.3	12	6.8	11	8.4	8
Atlanta	5.5	6	6.7	6	5.0	1
Chicago	5.4	15	6.3	13	5.6	9
Denver	7.0	15	7.5	11	7.6	10
Seattle	7.0	19	7.5	17	7.6	11

ESPC participants who are project expeditors and people with secondary energy project responsibilities report lower satisfaction with both the period of time to establish the delivery order/contract and FEMP project follow-up or support. ESPC participants who are people with primary operations and maintenance responsibilities report lower satisfaction with the amount of savings through the delivery order/contract.

Table 129 Participant satisfaction with aspects of FEMP ESPC by responsibility

	Period of time to establish the delivery order/contract		Amount of savings through the delivery order/contract		Project follow-up or support from FEMP after the delivery order/contract was established	
	Mean	N	Mean	N	Mean	N
Overall	6.4	71	6.9	63	7.2	40
Responsibility						
Project expeditors and people with secondary energy project responsibilities	5.0	5	7.2	5	6.3	4
Project initiators and planners	7.0	21	6.8	19	6.4	13
People with primary energy project responsibilities	6.6	35	7.2	31	7.8	20
People with primary operations and maintenance responsibilities	5.3	10	5.5	8	8.0	3

ESPC participants who are in second tier agencies report lower satisfaction with all three aspects.

Compared to ESPC participants in agencies, those who are federal contractors report lower satisfaction with both the period of time to establish the delivery order/contract and FEMP project follow-up or support.

Table 130 Participant satisfaction with aspects of ESPC by agency and federal contractors

	Period of time to establish the delivery order/contract		Amount of savings through the delivery order/contract		Project follow-up or support from FEMP after the delivery order/contract was established	
	Mean	N	Mean	N	Mean	N
Overall	6.4	71	6.9	63	7.2	40
Agency						
DOD	6.7	21	7.3	18	7.4	8
Big 4	7.8	17	7.4	16	7.6	11
2nd tier	5.7	17	5.9	13	7.4	8
3rd tier	6.3	3	6.0	3	8.5	2
Federal contractors	5.2	13	6.9	13	6.2	11

Suggestions for FEMP to improve ESPC

To provide FEMP input for improving the ESPC program, we asked ESPC participants to provide suggestions on what FEMP can do to help them identify, implement, or increase their energy savings from projects financed through the ESPC program. A summary of the results is presented in Table 131. More detailed responses are presented in Appendix B.

Forty-three percent of the 93 ESPC participants who were asked to provide suggestions indicated that they did not know what FEMP could do to help (37%) or said that they had no suggestions (6%). However, seven percent suggest more promotion and information about the program is needed and five percent say that technical assistance needs increased availability. Better identification of the amount of energy savings that can be expected, more case studies, and more project funding were each suggested by three percent of ESPC participants. An additional 30 percent of respondents indicate a variety of other things FEMP can do to help. These items are typically items provided by a single respondent and are listed in Appendix B.

Table 131 Suggestions for FEMP to improve ESPC

Suggestion	ESPC participants who made suggestions (N=93)
More promotion and information about the program	7
Technical assistance needs increased availability	5
Identify savings more or better	3
Need more case studies and examples	3
Need more funding or financing	3
Ease of process needs improvement	2
FEMP already did a good job on this	2
Lower or eliminate fees	2
Timeliness needs improvement	2
Other	30
None	6
Don't know	37

Summary of findings

- Seventy-one percent of all ESPC participants report an ideal contract length of 10 years or less. On average, participants report about 9 years as the ideal term length and 13 years as the maximum term length that they are willing to accept. The most common response (mode) given for the ideal term length is 10 years while the most common response given for the maximum term length is 15 years.
- Average satisfaction ratings are less than 8 for program follow-up and support, the amount of energy savings, and the time it takes to establish a delivery order/contract. These ratings indicate that these are areas for FEMP to address to increase satisfaction with the ESPC program.

Recommendations

- Federal agencies need the ability to enter into short-term delivery orders. FEMP should consider allowing flexible obligation periods consistent with agency needs, allowing agencies to adopt projects that provide for more rapid cost recovery and reduced periods of agency obligation.
- Agencies want ESPC project support that is fast, efficient, and customized to their individual needs. However, not all customers want or need FEMP support. FEMP should consider designing an adaptive project follow-up effort to cover additional technical assistance that includes project and process advice to agencies, working with agencies to identify high energy savings technologies, providing examples of projects that work well and save substantial amounts of energy, and other services consistent with a broad array of agency-specific or office-specific needs.

- ESPC customers are somewhat satisfied with their level of energy savings. This needs to be addressed. FEMP customers (who perceive their savings to be lower than expected) can network with other agencies and potentially harm the ESPC program. FEMP should consider efforts to help participants understand the level of savings they are getting in a way that participants view the savings as significant.
- The ESPC participation process needs to be streamlined. The streamlining needs to focus on the ease of participation and faster, less time-consuming procedures. Participants and potential participants need to view the ESPC process as fast, easy and efficient, consuming as little of their time and effort as possible. Currently the process required to establish a delivery order is a barrier to participation.

9. FEMP SAVEnergy Audit Impact Issues

The impact of the FEMP SAVEnergy Audit program is measured by customer adoption of energy audits to identify energy improvements and follow through with projects implemented. See Appendix C for a more complete description of the theory of adoption and diffusion of energy technologies. Other measures of impact include the number of projects implemented that are influenced by SAVEnergy Audits, the influence of SAVEnergy Audits on how energy improvements are identified, and the extent to which FEMP customers share SAVEnergy Audit information with colleagues.

Stages of adoption

Technology diffusion and adoption theory suggests that customers move through a systematic series of events before they adopt a new method of operation or technology. The six stages of adoption are:

1. Unaware stage
2. Awareness stage
3. Persuasion stage (information gathering)
4. Decision stage (yes or no)
5. Implementation stage
6. Confirmation stage (behavior is reinforced or repeated).

Movement of SAVEnergy Audit participants through the adoption cycle

Table 132 illustrates the position of SAVEnergy Audit participants in the adoption cycle for using audits to identify energy improvements. The analysis includes the period before participants heard about FEMP SAVEnergy Audits and the period since they became involved with FEMP SAVEnergy Audits.

Before hearing about FEMP SAVEnergy Audits, 14 percent of SAVEnergy Audit participants were unaware of energy audits (unaware stage), 29 percent had just become aware of energy audits (awareness stage), 10 percent had already begun collecting information about these type of audits (persuasion stage), four percent had decided to not use energy audits (decision stage), four percent had decided to use energy audits but had not yet done so (decision stage), eight percent had implemented energy audits one time (implementation stage), and 31 percent had implemented audits repeatedly (confirmation).

Since involvement with FEMP SAVEnergy Audits, no SAVEnergy Audit participants were in the unaware or aware stage. These results indicate that FEMP SAVEnergy Audits program have moved about 43 percent of participants at least through the first two stages of the adoption cycle, a significant accomplishment in market transformation. Moreover, the same type of movement also occurred on the top end of the diffusion scale. Since involvement with FEMP SAVEnergy Audits, 99 percent of participants were in

either the implementation or confirmation stage, compared to 39 percent before hearing about FEMP SAVEnergy Audits. This means that an additional 60 percent of participants moved into either the implementation or confirmation stage as a result of SAVEnergy Audits. We also examined the 4 percent of participants who had already decided not to use energy audits prior to their exposure to FEMP. Following their exposure to FEMP and SAVEnergy Audits, 100 percent have changed their decisions and have decided to give SAVEnergy Audits a try. In fact, all of the participants who said that they had decided not to use audits as a tool prior to their exposure to FEMP have implemented one or more SAVEnergy Audits since their exposure to FEMP SAVEnergy Audits. While the number of participants in this condition is very small (N=3), the results indicate that FEMP SAVEnergy Audits have allowed participants who said no to the use of audits as a tool to change their minds after learning about FEMP SAVEnergy Audits.

Table 132 Movement of SAVEnergy Audit participants through the adoption cycle

Stage of adoption	Percent of SAVEnergy Audit participants	
	Before hearing about SAVEnergy Audits	Since involvement with SAVEnergy Audits
Unaware	14	0
Aware	29	0
Persuasion	10	1
Decision – no	4	0
Decision – yes	4	0
Implementation	8	33
Confirmation	31	66

N=77

We also looked at differences in the movement of SAVEnergy Audit participants through the adoption cycle by region, responsibility, agency, and federal contractors.¹⁷ To facilitate presentation of the results, we concentrated on the distribution of SAVEnergy Audit participants who were in either the implementation or confirmation stage before hearing about FEMP SAVEnergy Audits and since involvement with FEMP SAVEnergy Audits. These results are presented in Table 133.

SAVEnergy Audit participants in the Boston and Atlanta regions had a higher level of implementation and confirmation before hearing about FEMP SAVEnergy Audits, while participants in the Denver region had much lower levels. SAVEnergy Audit participants who are people with primary operations and maintenance responsibilities and who are project initiators and planners had a lower level of implementation and confirmation before hearing about FEMP SAVEnergy Audits.

¹⁷ Refer to Chapter 1 for descriptions of these segments.

Federal contractors had a much lower level of implementation and confirmation before hearing about SAVEnergy Audits.

Table 133 SAVEnergy Audit participants in the implementation or confirmation stage by region, responsibility, agency, and federal contractors

Segment	Percent of SAVEnergy Audit participants		Movement (Difference)	N
	Before hearing about SAVEnergy Audits	Since involvement with SAVEnergy Audits		
Overall	39	99	60	77
Region				
Boston	67	100	33	3
Philadelphia	36	100	64	25
Atlanta	63	100	37	8
Chicago	44	100	56	16
Denver	15	100	85	13
Seattle	42	92	50	12
Responsibility				
Project expeditors and people with secondary energy project responsibilities	50	100	50	4
Project initiators and planners	32	100	68	22
People with primary energy project responsibilities	46	97	51	39
People with primary operations and maintenance responsibilities	25	100	75	12
Agency				
DOD	46	100	54	13
Big four	45	100	55	20
Second tier	41	100	59	29
Third tier	33	100	67	9
Federal contractors	0	83	83	6

Movement of SAVEnergy Audit nonparticipants who are aware of FEMP SAVEnergy Audits through the adoption cycle

Table 134 illustrates the position of SAVEnergy Audit nonparticipants, who are aware of FEMP SAVEnergy Audits, in the energy audit service adoption cycle. We refer to this group as aware SAVEnergy Audit nonparticipants. The analysis includes the period before these nonparticipants heard about FEMP SAVEnergy Audits and the period since they heard about FEMP SAVEnergy Audits.

Before hearing about FEMP SAVEnergy Audits, eight percent of aware SAVEnergy Audit nonparticipants were unaware of energy audits (unaware stage), 29 percent had just become aware of these audits (awareness stage), seven percent had already begun collecting information about audits (persuasion stage), nine percent had decided to not use energy audits (decision stage), three percent had decided to use energy audits but had not yet implemented them (decision stage), 17 percent had implemented energy audits one time (implementation stage), and 26 percent had implemented energy audits repeatedly (confirmation).

Since hearing about FEMP SAVEnergy Audits, no aware SAVEnergy Audit nonparticipants that were previously aware of FEMP were unaware of these audits (unaware stage) and 33 percent had just become aware of these audits (awareness stage). These results indicate that only 4 percent of the aware nonparticipants have moved at least through the first two stages of the adoption cycle. This is significantly less than the 43 percent of the participants who have moved through the first two stages of the adoption cycle and supports the conclusion that FEMP SAVEnergy Audits are a major factor underlying the movement of participants through the adoption cycle. Moreover, the same types of results are found on the top end of the diffusion scale. Since hearing about FEMP SAVEnergy Audits, 48 percent of aware nonparticipants are in either the implementation or confirmation stage, compared to 43 percent before hearing about FEMP SAVEnergy Audits. This means that only five percent of aware nonparticipants moved into either the implementation or confirmation stage. Again, this is significantly less than the 60 percent of participants who moved through the last two stages of the adoption cycle and supports the conclusion that FEMP SAVEnergy Audits are a major factor underlying the movement of participants through the adoption cycle.

We also examined the nine percent of aware SAVEnergy Audit nonparticipants who had decided not to use energy audits as a tool. Over 80 percent of this group have yet to move forward and use energy audits as a tool, while about 20 percent has indicated that they are going to, or have conducted an audit. Again, while this is a small group, (N=11) the data does suggest that nonparticipants who are aware of FEMP SAVEnergy Audits do not tend to move forward with energy audits without FEMP.

Table 134 Movement of aware SAVEnergy Audit nonparticipants through the adoption cycle

Stage of adoption	Percent of aware SAVEnergy Audit nonparticipants	
	Before hearing about SAVEnergy Audits	Since hearing about SAVEnergy Audits
Unaware	8	0
Aware	29	33
Persuasion	7	5
Decision – no	9	10
Decision – yes	3	4
Implementation	17	20
Confirmation	26	28

N=121

As with SAVEnergy Audit participants, we also looked at differences in the movement of aware SAVEnergy Audit nonparticipants through the adoption cycle by region, responsibility, agency, and federal contractors. These results are presented in Table 135.

For most segments, the level of implementation and confirmation was in the 30-40 percent range before hearing about SAVEnergy Audits and in the 40-50 percent range since hearing about SAVEnergy Audits.

Table 135 Aware SAVEnergy Audit nonparticipants in the implementation or confirmation stage by region, responsibility, agency, and federal contractors

Segment	Percent of aware SAVEnergy Audit nonparticipants		Movement (Difference)	N
	Before hearing about SAVEnergy Audits	Since hearing about SAVEnergy Audits		
Overall	43	48	5	121
Region				
Boston	38	50	12	8
Philadelphia	38	44	6	32
Atlanta	50	50	0	16
Chicago	47	50	3	30
Denver	35	45	10	20
Seattle	53	53	0	15
Responsibility				
Project expeditors and people with secondary energy project responsibilities	37	37	0	19
Project initiators and planners	47	56	9	32
People with primary energy project responsibilities	44	50	6	48
People with primary operations and maintenance responsibilities	41	41	0	22
Agency				
DOD	44	50	6	34
Big four	52	52	0	31
Second tier	38	47	9	32
Third tier	43	43	0	7
Federal contractors	35	41	6	17

Position of SAVEnergy Audit nonparticipants who are unaware of FEMP SAVEnergy Audits in the adoption cycle

Table 136 illustrates the position in the adoption cycle of SAVEnergy Audit nonparticipants who are unaware of FEMP SAVEnergy Audits. We refer to this group as unaware SAVEnergy Audit nonparticipants. The analysis includes only the period before the unaware SAVEnergy Audit nonparticipants heard about FEMP SAVEnergy Audits, since there can be no “after period” because these nonparticipants are unaware of FEMP SAVEnergy Audits.

Forty percent of the unaware SAVEnergy Audit nonparticipants are unaware of energy audits (unaware stage), 35 percent have just become aware (awareness stage), six percent

have already begun collecting information about energy audits (persuasion stage), one percent had decided to not use audits (decision stage), one percent had decided to use energy audits but had not yet implemented them (decision stage), eight percent have implemented energy audits one time (implementation stage), and eight percent have implemented energy audits repeatedly (confirmation).

Table 136 Position of unaware SAVEnergy Audit nonparticipants in the adoption cycle

Stage of adoption	Percent unaware SAVEnergy Audit nonparticipants
Unaware	40
Aware	35
Persuasion	6
Decision – no	1
Decision – yes	1
Implementation	8
Confirmation	8

N=207

The position of unaware SAVEnergy Audit nonparticipants in the adoption cycle is significantly different from the position of SAVEnergy Audit participants and aware SAVEnergy Audit nonparticipants. The vast majority of unaware SAVEnergy audit nonparticipants have also not heard about energy audits in general, or have just begun to become aware.

As with SAVEnergy Audit participants and aware SAVEnergy Audit nonparticipants, we also looked at differences in the position of unaware SAVEnergy Audit nonparticipants in the adoption cycle by region, responsibility, agency, and federal contractors. These results are presented in Table 137.

Unaware SAVEnergy Audit nonparticipants who are in the Atlanta and Seattle regions, who are in the third tier agencies, and who are project initiators and planners have a higher level of implementation and confirmation.

Table 137 Unaware SAVEnergy Audit nonparticipants in the implementation or confirmation stage by region responsibility, agency, and federal contractors

Segment	Percent of unaware SAVEnergy Audit nonparticipants	N
Overall	16	207
Region		
Boston	15	13
Philadelphia	17	24
Atlanta	38	21
Chicago	10	111
Denver	18	22
Seattle	31	16
Responsibility		
Project expeditors and people with secondary energy project responsibilities	10	53
Project initiators and planners	29	31
People with primary energy project responsibilities	21	67
People with primary operations and maintenance responsibilities	11	56
Agency		
DOD	14	70
Big four	22	45
Second tier	10	58
Third tier	33	9
Federal contractors	20	25

Together these data demonstrate that FEMP SAVEnergy Audits are changing how federal facilities identify energy saving opportunities in federal buildings. These results indicate that the aware SAVEnergy Audit nonparticipants move somewhat faster through the audit adoption process, than unaware SAVEnergy Audit nonparticipants, and those participants in FEMP SAVEnergy Audits move much more rapidly and more completely through the adoption process. FEMP appears to be a key factor in the adoption of energy audits as a tool for identifying energy savings opportunities in federal buildings.

Implementation of energy improvements based on FEMP SAVEnergy Audits

SAVEnergy Audit participants were asked about their progress with respect to implementing energy improvements based on FEMP SAVEnergy Audits. These results are presented in Table 138. Sixty-nine percent have made energy improvements that are based on SAVEnergy Audit recommendations, and 13 percent have developed internal plans, budgets, or procedures to make energy improvements identified through SAVEnergy Audits. An additional one percent have made a decision to use SAVEnergy Audit recommendations to make energy improvements but have not done so yet, one percent have made a decision to not use SAVEnergy Audit recommendations to make energy improvements, five percent have continued to actively search for information on how to use SAVEnergy Audit recommendations to make energy improvements, and 10 percent have not continued to actively search for information on how to use SAVEnergy Audit recommendations to make energy improvements. Together 83 percent of SAVEnergy Audit participants have used or are in the process of using the audit report to make energy efficiency improvements to their facilities. The FEMP SAVEnergy Audit report is being used in federal facilities to improve the energy efficiency of those facilities, and these events are occurring for the vast majority of SAVEnergy Audit participants.

Table 138 Level of energy improvement implementation based on SAVEnergy Audits

Level of implementation	Percent of SAVEnergy Audit participants
Made energy improvements that were based on SAVEnergy Audit recommendations	69
Developed internal plans, budgets, or procedures to make energy improvements identified through SAVEnergy Audits	13
Made decision to use SAVEnergy Audit recommendations to make energy improvements	1
Made decision to not use SAVEnergy Audit recommendations to make energy improvements	1
Continued to actively search for information on how to use SAVEnergy Audit recommendations to make energy improvements	5
Have not continued to actively search for information on how to use SAVEnergy Audit recommendations to make energy improvements	10

N=77

The number of FEMP SAVEnergy Audits conducted and projects implemented based on SAVEnergy Audit recommendations are presented in Table 139. SAVEnergy Audit participants have conducted an average of 7.5 SAVEnergy Audits, indicating that these participants are repeat customers several times over. In addition, in a typical year, these participants implement an average of 4.3 projects per year based on the recommendations presented in their SAVEnergy Audit.

Table 139 Number of FEMP SAVEnergy Audits conducted and projects implemented based on recommendations

	Mean	N
Overall number of SAVEnergy Audits conducted	7.5	70
Overall number of projects implemented using SAVEnergy Audit recommendations	7.7	48
Number of projects implemented using SAVEnergy Audit recommendations in a typical year	4.3	46

We also looked at differences in the overall number of projects implemented using SAVEnergy Audit recommendations by ease of use, region, responsibility, agency, and federal contractors. These results are presented in Table 140.

While SAVEnergy Audit participants who found SAVEnergy Audits easy to use are more likely to have implemented projects using the audit recommendations, participants who found SAVEnergy Audits difficult to use have, on average, implemented more projects. These data indicate that participant opinions about the difficulties associated with using SAVEnergy Audits as a tool do not have the effect of reducing the use of the audit report. Compared to SAVEnergy Audit participants in other regions, participants in the Atlanta region are the most likely to have implemented projects using SAVEnergy Audit recommendations; however, they also have implemented the lowest number of projects on average. Participants who are people with primary operations and maintenance responsibilities are more likely to have implemented projects using SAVEnergy Audit recommendations, while participants who are people with primary energy project responsibilities are less likely. Participants in the big 4 and second tier agencies are more likely to have implemented projects using SAVEnergy Audit recommendations, while participants in third tier agencies are less likely.

While SAVEnergy Audit participants who are federal contractors are more likely than participants in agencies to have implemented projects using the audit recommendations, participants who are federal contractors have implemented less projects on average.

Table 140 Level of energy improvement implementation based on SAVEnergy Audits by ease of use, region, responsibility, agency, and federal contractors

Segment	Participants who implemented projects using SAVEnergy Audit recommendations		Overall number of projects implemented using SAVEnergy Audit recommendations	
	Percent	N	Mean	N
Overall	69	77	7.7	48
Ease of use				
Difficult to use	60	15	10.0	7
Easy to use	70	54	7.2	35
Region				
Boston	67	3	11.0	2
Philadelphia	64	25	11.2	12
Atlanta	88	8	3.7	6
Chicago	56	16	5.6	9
Denver	77	13	5.5	10
Seattle	75	12	9.4	9
Responsibility				
Project expeditors and people with secondary energy project responsibilities	75	4	17.5	2
Project initiators and planners	77	22	7.5	14
People with primary energy project responsibilities	56	39	6.9	22
People with primary operations and maintenance responsibilities	92	12	7.6	10
Agency				
DOD	62	13	10.8	6
Big four	75	20	7.5	14
Second tier	72	29	7.7	19
Third tier	44	9	8.0	4
Federal contractors	83	6	4.0	5

SAVEnergy Audit participants who have implemented projects using SAVEnergy Audit recommendations were asked to provide examples of the types of technologies installed that were in whole or in part influenced by FEMP SAVEnergy Audits. These results are presented in Table 141.

Of the 53 surveyed participants (69%) who implemented projects using SAVEnergy Audit recommendations, lighting measures were the most commonly installed measure, followed by HVAC measures.

Table 141 Technologies installed due to FEMP SAVEnergy Audits

Technology	Percent of SAVEnergy Audit participants (N=53)
Lighting	76
HVAC	36
Water conservation/recovery/heating/pollution reduction	17
Renewables	11
Motors/drives/pumps	9
Windows	8
Co-generation, heat recovery, thermal storage	6
EMS	6
Thermal envelope	4
Fuel Cells	2
Other	4

Adds to more than 100% due to multiple responses

Influence of FEMP SAVEnergy Audits on how energy improvements are identified

Table 142 presents the influence of SAVEnergy Audits on how energy improvements are identified. As expected, SAVEnergy Audit participants are much more influenced by FEMP SAVEnergy Audits in the way that they identify what actions should be taken. On average, participants rated the influence of SAVEnergy Audits at 7.8 compared to 3.2 for aware SAVEnergy Audit nonparticipants. Thus, FEMP SAVEnergy Audits are helping agencies identify energy savings opportunities.

Table 142 Influence of SAVEnergy Audits on how energy improvements are identified

Level of influence	Percent of SAVEnergy Audit participants (N=72)	Percent of aware SAVEnergy Audit nonparticipants (N=92)
10	29	7
9	18	7
8	19	5
7	11	3
6	6	1
5	8	8
4	0	1
3	1	7
2	1	3
1	6	59
Mean	7.8	3.2

To understand these results better, we looked at the average rating for SAVEnergy Audit influence by the stage of adoption, ease of use, region, responsibility, agency, and federal contractors. These results are presented in Table 143.

SAVEnergy Audit participants in the implementation and confirmation stages of adoption and those who think that SAVEnergy Audits are easy to use rate the influence of FEMP SAVEnergy Audits higher. Participants in the Atlanta region rate the influence of SAVEnergy Audits higher while those in the Chicago region rate the influence lower. SAVEnergy Audit participants who are people with primary operations and maintenance responsibilities rate the influence of SAVEnergy Audits higher, while those who are project expeditors and people with secondary energy project responsibilities rate the influence lower.

Participants who are federal contractors rate the influence of FEMP SAVEnergy Audits lower than participants in agencies.

Table 143 Influence of FEMP SAVEnergy Audits on how energy improvements are identified by stage of adoption, ease of use, region, responsibility, agency, and federal contractors

Segment	SAVEnergy Audit participants		Aware SAVEnergy Audit nonparticipants	
	Mean	N	Mean	N
Overall	7.8	72	3.2	92
Stage of adoption				
Aware	NA		3.4	31
Persuasion	1.0	1	4.8	4
Decision – no	NA		2.3	12
Decision – yes	NA		4.0	4
Implementation	7.8	23	3.6	17
Confirmation	7.9	48	2.9	24
Ease of use				
Difficult to use	6.5	13	2.8	36
Easy to use	7.9	52	3.7	42
Region				
Boston	8.3	3	5.4	5
Philadelphia	7.9	24	3.9	25
Atlanta	9.7	7	2.2	13
Chicago	7.4	14	2.5	19
Denver	7.4	12	2.9	18
Seattle	6.9	12	3.8	12
Responsibility				
Project expeditors and people with secondary energy project responsibilities	6.8	4	1.7	11
Project initiators and planners	7.9	21	3.5	23
People with primary energy project responsibilities	7.5	35	3.1	40
People with primary operations and maintenance responsibilities	8.6	12	4.1	18
Agency				
DOD	7.6	13	2.9	28
Big four	7.6	18	3.4	23
Second tier	8.1	27	3.4	23
Third tier	8.3	8	2.8	4
Federal contractors	6.2	6	3.4	14

Provided colleagues with information about FEMP SAVEnergy Audits

The extent to which SAVEnergy Audit participants and aware SAVEnergy Audit nonparticipants provide colleagues with information about SAVEnergy Audits is

presented in Table 144. Seventy percent of SAVEnergy Audit participants and 38 percent of aware SAVEnergy Audit nonparticipants provide colleagues with information about FEMP SAVEnergy Audits. Of those who provide colleagues with information, 97 percent of SAVEnergy Audit participants and 95 percent of aware SAVEnergy Audit nonparticipants provide information to colleagues within their organization, and 40 percent of SAVEnergy Audit participants and 50 percent of aware SAVEnergy Audit nonparticipants provide information to colleagues outside of their organization. On average, SAVEnergy Audit participants provide information to 41 colleagues within their organization and 18 colleagues outside of their organization, while aware SAVEnergy Audit nonparticipants provide information about 15 colleagues within their organization and 15 colleagues outside of their organization. This data indicates that participants and nonparticipants share SAVEnergy Audit information both inside and outside of their organizations. Both program users and nonusers who are aware of the FEMP SAVEnergy Audits are networking SAVEnergy Audit materials and information in the federal market.

Table 144 Provided colleagues with information about SAVEnergy Audits

Provision of information	SAVEnergy Audit participants		Aware SAVEnergy Audit nonparticipants	
	Percent	N	Percent	N
Provided colleagues with information about SAVEnergy Audits	70	77	38	121
Provided colleagues within organization with information about SAVEnergy Audits (% of those who provide colleagues with information)	97	54	95	46
Provided colleagues outside of organization with information about SAVEnergy Audits (% of those who provide colleagues with information)	40	54	50	46
Mean number of people within organization with whom shared information	41.4	52	15.4	44
Mean number of people outside of organization with whom shared information	17.5	50	15.3	45

To understand these results better, we looked at the distribution of those who provided information about SAVEnergy Audits to colleagues by their stage of adoption, ease of use, region, responsibility, agency and federal contractors. These results are presented in Table 145.

Interestingly, SAVEnergy Audit participants who think that SAVEnergy Audits are difficult to use are more likely to provide information to colleagues. This may present a concern if they are telling colleagues about the difficulties they are encountering.

SAVEnergy Audit participants who are in the implementation stage and aware SAVEnergy Audit nonparticipants in the awareness stage are less likely to provide information to colleagues. Participants in the Boston, Seattle, and Philadelphia regions are more likely to provide information to colleagues, while participants in the Chicago, Denver, and Atlanta regions are less likely. Participants who are project expeditors and people with secondary energy project responsibilities and participants who are project initiators and planners are more likely to share information with colleagues. Participants in the DOD are more likely to provide information to colleagues.

Participants who are federal contractors are less likely than participants in the DOD and more likely than participants in other agencies to provide information to colleagues.

Table 145 Provided colleagues with information about FEMP SAVEnergy Audits by stage of adoption, ease of use, region, responsibility, agency, and federal contractors

Segment	SAVEnergy Audit participants		Aware SAVEnergy Audit nonparticipants	
	Percent	N	Percent	N
Overall	70	77	38	121
Ease of use				
Difficult to use	87	15	36	47
Easy to use	69	54	40	52
Stage of adoption				
Aware	NA		25	40
Persuasion	100	1	50	6
Decision – no	NA		42	12
Decision – yes	NA		80	5
Implementation	52	25	46	24
Confirmation	78	51	38	34
Region				
Boston	100	3	50	8
Philadelphia	80	25	56	32
Atlanta	63	8	19	16
Chicago	50	16	30	30
Denver	62	13	25	20
Seattle	83	12	47	15
Responsibility				
Project expeditors and people with secondary energy project responsibilities	100	4	42	19
Project initiators and planners	86	22	41	32
People with primary energy project responsibilities	62	39	31	48
People with primary operations and maintenance responsibilities	58	12	46	22
Agency				
DOD	85	13	35	34
Big four	60	20	42	31
Second tier	69	29	31	32
Third tier	67	9	43	7
Federal contractors	83	6	47	17

Summary of findings

- The FEMP SAVEnergy Audit program is moving federal customers through the process of using audits to achieve higher levels of energy efficiency in federal buildings. FEMP is moving their participants through this process much faster than

nonparticipants who use the services of other audit providers. While energy audits are conducted outside of FEMP, they are used much less frequently. In addition, SAVEnergy Audit nonparticipants who do use audits to identify opportunities do so at a much slower pace than do SAVEnergy Audit participants. FEMP is significantly accelerating the federal market toward the use of energy audits to achieve energy savings in federal facilities.

- FEMP is also successful at helping federal facility managers who have, on-their-own, decided not to use energy audits available in the commercial market, change their mind and use FEMP SAVEnergy Audits.
- SAVEnergy Audit participants have conducted an average of 7.5 SAVEnergy Audits in their facilities. In a typical year, these participants implement an average of 4.3 energy projects based on the recommendations presented in their audit report.
- A strong majority (70%) of SAVEnergy Audit participants and 38 percent of nonparticipants who are aware of SAVEnergy Audits, share information about the SAVEnergy Audit program with their colleagues and peers. Of these, most all share information within their organization, and about half share information outside of their organization.

Recommendations

- Continue successful efforts to accelerate the federal market toward the use of energy audits to achieve energy savings in federal facilities.
- Develop marketing strategies that emphasize customer referrals and networking. These strategies will be effective at increasing awareness and use of FEMP SAVEnergy Audits due to the high satisfaction levels among FEMP customers and the fact that both SAVEnergy Audit participants and nonparticipants share information with their peers, substantially increasing visibility of FEMP SAVEnergy Audits in the federal market.

10. FEMP SAVEnergy Market Issues

Market issues pertaining to FEMP SAVEnergy Audits are presented in this chapter. These issues include continued and potential use of SAVEnergy Audits, reasons for using SAVEnergy Audits, ease in using financing through SAVEnergy Audits, barriers to using SAVEnergy Audits, and the types of people FEMP should approach when promoting SAVEnergy Audits.

Continued and potential use of FEMP SAVEnergy Audits

To assess future interest and use in FEMP SAVEnergy Audits, we asked SAVEnergy Audit participants to rate their likelihood of continued use of SAVEnergy Audits, and we asked SAVEnergy Audit nonparticipants to rate their likelihood of potential use of SAVEnergy Audits. The ratings were on a 1 to 10 scale, where 1 meant very unlikely and 10 meant very likely. The results are presented in Table 146.

Seventy-six percent of SAVEnergy Audit participants rate their likelihood to continue using at 8 or higher, with 42 percent giving a rating of 10. On average, participants rate their likelihood to continue participation at 8.1. These are strong ratings reflective of a market that wants to continue doing what it is doing. The results for aware SAVEnergy Audit nonparticipants are much different. For example, only 34 percent of aware SAVEnergy Audit nonparticipants and 35 percent of unaware SAVEnergy Audit nonparticipants rate their likelihood of potential use at 8 or higher, and aware nonparticipants and unaware nonparticipants, on average, rate their likelihood of potential at 5.3 and 5.2, respectively. These results suggest that once a customer uses SAVEnergy Audits, the likelihood of continued use is relatively high. In addition, the nonparticipant findings suggest that about a third of the nonparticipant market is interested in FEMP SAVEnergy Audits.

Table 146 Likelihood of continued and potential use of FEMP SAVEnergy Audits

Likelihood of continued and potential use	Percent of SAVEnergy Audit participants (N=72)	Percent of SAVEnergy Audit nonparticipants	
		Aware of SAVEnergy Audits (N=113)	Unaware of SAVEnergy Audits (N=178)
10	42	12	13
9	13	4	3
8	22	18	19
7	3	8	8
6	1	5	3
5	13	15	13
4	0	4	5
3	1	6	5
2	0	6	3
1	6	22	27
Mean	8.1	5.3	5.2

We asked those who gave a rating of 7 or less the reasons for their rating. A summary of these results for SAVEnergy Audit participants, aware SAVEnergy Audit nonparticipants, and unaware SAVEnergy Audit nonparticipants is presented in Table 147, Table 148, and Table 149, respectively. More detailed responses are presented in Appendix B.

Of the 17 SAVEnergy Audit participants (24%) who gave a rating of 7 or less, issues regarding previous use of SAVEnergy Audits, limited funding for audits, and use of other audit software and services are cited most frequently.

Table 147 Reasons for rating likelihood to continue using SAVEnergy Audits at 7 or less among SAVEnergy Audit participants

Reason	Percent of SAVEnergy Audit participants who gave a rating of 7 or less (N=17)
Already completed our use of SAVEnergy Audits	18
Funding is limited for doing audits	12
We are now using other audit software and services	12
We may use SAVEnergy Audits again in the future	12
Existing audits are getting dated	6
It does not apply to our facilities	6
SAVEnergy audit is not detailed enough	6
We are in the process of completing our first one	6
Other	18
Don't know	6

Adds to more than 100% due to multiple responses

Of the 75 aware SAVEnergy Audit nonparticipants (66%) who gave a rating of 7 or less, issues regarding use of other audits and in-house audits are most frequently cited.

Table 148 Reasons for rating likelihood to use SAVEnergy Audits at 7 or less among aware SAVEnergy Audit nonparticipants

Reason	Percent of aware SAVEnergy Audit nonparticipants who gave a rating of 7 or less (N=75)
Already used other audits / do audits in-house	35
No or little need for it / facilities have already been upgraded	13
We may use SAVEnergy audits in the future	11
Cost of audits is prohibitive / lack funding	8
Decision is made elsewhere	7
Facilities are too small / facilities are new	5
Other	16
Don't know	5

Of the 115 unaware SAVEnergy Audit nonparticipants (64%) who gave a rating of 7 or less, issues regarding use of other audits / in-house audits and not knowing enough about SAVEnergy Audits are most frequently cited.

Table 149 Reasons for rating likelihood to use SAVEnergy Audits at 7 or less among unaware SAVEnergy Audit nonparticipants

Reason	Percent of unaware SAVEnergy Audit nonparticipants who gave a rating of 7 or less (N=115)
Already used other audits / do audits in-house	17
Don't know enough about it	16
Decision is made elsewhere	14
We may use SAVEnergy audits in the future	11
Cost of the audit is an issue	11
No or little need for it / low priority	11
Facilities are too small / facilities are new	4
Other	13
Don't know	4

To understand these results better, we compared the average likelihood ratings by the stage of adoption, ease of use, region, responsibility, agency, and federal contractors.¹⁸ These results are presented in Table 150.

The likelihood of continued use is higher among SAVEnergy Audit participants in the confirmation stage and lower among participants in the persuasion stage. Participants who think that SAVEnergy Audits are easy to use have a higher likelihood of continued use. Participants in the Boston region have a higher likelihood of continued use while participants in the Denver region have a lower likelihood. The likelihood of continued use is higher among participants in third tier agencies. Participants who are project expeditors and people with secondary energy project responsibilities have a lower likelihood of continued use.

Participants who are federal contractors have a lower likelihood of continued use compared to participants in agencies

¹⁸ Refer to Chapter 1 for descriptions of these segments.

Table 150 Likelihood of continued and potential use of SAVEnergy Audits by stage of adoption, ease of use, region, responsibility, agency, and federal contractors

Segment	SAVEnergy Audit participants		SAVEnergy Audit nonparticipants			
	Mean	N	Aware of SAVEnergy Audits		Unaware of SAVEnergy Audits	
	Mean	N	Mean	N	Mean	N
Overall	8.1	72	5.3	113	5.2	178
Stage of adoption						
Unaware	NA		NA	NA	5.0	63
Aware	NA		4.5	36	4.9	68
Persuasion	5.0	1	4.5	6	6.2	12
Decision – no	NA		5.5	10	4.5	2
Decision – yes	NA		7.4	5	8.0	3
Implementation	7.2	23	5.8	23	5.4	16
Confirmation	8.6	48	5.5	33	6.5	14
Ease of use						
Difficult to use	7.3	14	5.3	44	NA	NA
Easy to use	8.3	52	5.1	49	NA	NA
Region						
Boston	9.3	3	5.0	8	5.9	11
Philadelphia	8.5	24	5.7	31	4.5	24
Atlanta	8.0	7	5.7	15	6.8	16
Chicago	7.9	14	4.9	26	5.1	99
Denver	7.5	13	5.1	19	5.5	18
Seattle	7.8	11	5.1	14	4.2	10
Responsibility						
Project expeditors and people with secondary energy project responsibilities	6.3	3	5.4	16	4.7	45
Project initiators and planners	8.2	21	4.8	30	4.7	27
People with primary energy project responsibilities	8.1	36	5.4	48	6.0	58
People with primary operations and maintenance responsibilities	8.0	12	5.5	19	5.1	48
Agency						
DOD	7.2	13	5.2	33	5.5	61
Big four	8.1	17	5.4	29	5.6	39
Second tier	8.5	28	5.2	32	5.1	49
Third tier	9.3	8	6.1	7	4.0	7
Federal contractors	6.3	6	5.0	12	4.5	22

Reasons for using FEMP SAVEnergy Audits

To assess the reasons for using FEMP SAVEnergy Audits, we asked SAVEnergy Audit participants and aware SAVEnergy Audit nonparticipants¹⁹ to rate the level of influence that various reasons have in the decision to use FEMP SAVEnergy Audits. The ratings were on a 1 to 10 scale, where 1 meant not at all a reason and 10 meant a very influential reason. The results for participants are presented in Table 151, and the results for aware nonparticipants are presented in Table 152.

SAVEnergy Audit participants rate reducing energy use as the most influential reason. Eighty-nine percent of participants rate the influence of this reason at 8 or higher, with 52 percent giving a rating of 10. On average, participants rate the influence of this reason at 8.8. Participants rate increasing productivity as the least influential reason. Forty-one percent of participants rate the influence of this reason at 8 or higher, with 15 percent giving a rating of 10. On average, participants rate the influence of this reason at 6.4. These results demonstrate that there are a range of reasons for using SAVEnergy Audits, with some of reasons more important than others for the average participant. However, reducing energy use and complying with the agency energy plan are the most important reasons for many SAVEnergy Audit participants.

Table 151 Reasons for using FEMP SAVEnergy Audits among participants

Level of influence	Percent of SAVEnergy Audit participants					
	To reduce energy use (N=77)	To comply with agency's energy management plan (N=77)	To lower maintenance costs (N=76)	To learn about new technologies (N=77)	To improve indoor air quality (N=77)	To increase productivity (N=73)
10	52	42	32	22	22	15
9	16	12	15	9	14	7
8	21	22	24	22	17	19
7	4	8	8	13	9	10
6	0	7	3	13	7	14
5	5	9	13	10	10	16
4	0	0	1	3	5	3
3	1	0	4	5	5	4
2	0	0	0	0	4	6
1	1	1	1	3	7	7
Mean	8.8	8.4	7.9	7.3	6.9	6.4

Aware SAVEnergy Audit nonparticipants are similar to participants in that they also rate reducing energy use as the most influential reason and increasing productivity as the least influential reason. Eighty-three percent of aware nonparticipants rate the influence of reducing energy use at 8 or higher, with 56 percent giving a rating of 10. On average, aware nonparticipants rate the influence of this reason at 8.8. Forty-six percent of aware

¹⁹ Aware SAVEnergy Audit nonparticipants were asked about potential reasons for participation to support market development issues for the SAVEnergy Audit program.

nonparticipants rate the influence of increasing productivity at 8 or higher, with 25 percent giving a rating of 10. On average, aware nonparticipants rate the influence of this reason at 6.7.

Table 152 Reasons for using FEMP SAVEnergy Audits among aware nonparticipants

Level of influence	Percent of aware SAVEnergy Audit nonparticipants					
	To reduce energy use (N=120)	To comply with agency's energy management plan (N=118)	To lower maintenance costs (N=120)	To learn about new technologies (N=120)	To improve indoor air quality (N=119)	To increase productivity (N=119)
10	56	28	37	29	21	25
9	13	9	7	8	8	8
8	14	22	24	19	22	13
7	8	14	15	10	7	12
6	2	5	3	8	8	6
5	3	14	6	11	15	13
4	1	2	3	3	5	5
3	1	2	4	7	5	3
2	2	4	2	3	4	7
1	1	2	1	3	5	8
Mean	8.8	7.5	8.0	7.2	6.8	6.7

To understand these results better, we compared the ratings of each reason by the stage of adoption, ease of use, region, responsibility, agency, and federal contractors. These results for SAVEnergy Audit participants are presented in Table 153, and the results for aware SAVEnergy Audit nonparticipants are presented in Table 154.

The relative influence ratings among SAVEnergy Audit participants segregated by stage of adoption, ease of use, region, agency, and responsibility are similar to the ratings among participants overall (not segregated). For instance, reducing energy use is rated as the most influential reason within most of the segments. There are, however, some segments that rate lowering maintenance costs as the most influential reason.

Table 153 Reasons for using FEMP SAVEnergy Audits among participants by stage of adoption, ease of use, region, responsibility, agency, and federal contractors

Segment	To reduce energy use		To comply with agency's energy management plan		To lower maintenance costs		To learn about new technologies		To improve indoor air quality		To increase productivity	
	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N
Overall	8.8	77	8.4	77	7.9	76	7.3	77	6.9	77	6.4	73
Stage of adoption												
Aware	NA		NA		NA		NA		NA		NA	
Persuasion	5.0	1	5.0	1	5.0	1	3.0	1	3.0	1	3.0	1
Decision – no	NA		NA		NA		NA		NA		NA	
Decision – yes	NA		NA		NA		NA		NA		NA	
Implementation	8.7	25	8.4	25	7.5	25	7.2	25	6.8	25	5.7	23
Confirmation	9.0	51	8.4	51	8.2	50	7.4	51	7.0	51	6.8	49
Ease of use												
Difficult to use	7.8	15	8.0	15	7.5	15	6.3	15	6.1	15	6.1	14
Easy to use	9.1	54	8.3	54	8.0	53	7.3	54	6.9	54	6.3	52
Region												
Boston	8.7	3	8.7	3	8.0	3	6.7	3	7.0	3	6.3	3
Philadelphia	9.1	25	9.0	25	8.0	25	7.3	25	6.9	25	6.5	24
Atlanta	8.5	8	8.0	8	8.8	8	7.3	8	7.0	8	6.9	8
Chicago	8.8	16	8.6	16	7.8	16	7.3	16	7.1	16	5.9	14
Denver	8.6	13	7.7	13	7.9	13	7.2	13	6.5	13	6.6	13
Seattle	9.0	12	7.6	12	7.1	11	7.5	12	6.9	12	6.2	11
Responsibility												
Project expeditors and people with secondary energy project responsibilities	8.8	4	8.3	4	8.8	4	8.3	4	7.8	4	7.0	2
Project initiators and planners	8.8	22	7.7	22	7.6	22	7.2	22	6.4	22	6.3	22
People with primary energy project responsibilities	8.8	39	8.7	39	7.8	38	7.2	39	6.6	39	6.3	37
People with primary operations and maintenance responsibilities	9.2	12	8.4	12	8.4	12	7.3	12	8.5	12	6.8	12
Agency												
DOD	9.3	13	8.5	13	8.4	13	7.6	13	7.2	13	6.7	13
Big four	8.9	20	8.0	20	7.8	20	7.5	20	6.7	20	5.8	18
Second tier	9.0	29	8.6	29	8.1	28	7.6	29	7.2	29	6.5	27
Third tier	8.6	9	9.6	9	7.0	9	7.1	9	6.9	9	7.2	9
Federal contractors	7.2	6	6.8	6	7.7	6	4.7	6	5.7	6	5.8	6

As with SAVEnergy Audit participants, the relative influence ratings among aware SAVEnergy Audit nonparticipants segregated by stage of adoption, ease of use, region, agency, and responsibility is similar to the ratings among aware nonparticipants overall (not segregated). For instance, reducing energy use is rated as the most influential reason

within most of the segments. There are, however, some segments that rate lower maintenance costs as the most influential reason.

Table 154 Reasons for using FEMP SAVEnergy Audits among aware nonparticipants by stage of adoption, ease of use, region, agency, and responsibility

Segment	To reduce energy use		To comply with agency's energy management plan		To lower maintenance costs		To learn about new technologies		To improve indoor air quality		To increase productivity	
	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N
Overall	8.8	120	7.5	118	8.0	120	7.2	120	6.8	119	6.7	119
Stage of adoption												
Aware	8.2	40	6.9	39	7.3	40	6.6	40	5.7	40	5.8	40
Persuasion	8.3	6	8.2	6	9.2	6	7.7	6	8.8	6	7.7	6
Decision – no	9.1	12	8.6	12	8.3	12	7.3	12	7.3	12	7.8	12
Decision – yes	8.8	5	8.3	4	8.0	5	8.0	5	6.8	4	4.6	5
Implementation	9.1	24	7.1	24	7.8	24	7.3	24	7.2	24	7.0	23
Confirmation	9.4	33	7.9	33	8.6	33	7.8	33	7.2	33	7.3	33
Ease of use												
Difficult to use	8.2	47	7.0	47	7.4	47	6.6	47	6.2	47	6.1	47
Easy to use	9.3	52	7.8	51	8.3	52	7.6	52	7.0	52	6.8	51
Region												
Boston	9.0	8	7.1	8	8.1	8	8.6	8	7.4	8	6.9	7
Philadelphia	9.1	32	8.0	32	8.4	32	8.2	32	7.4	32	7.3	32
Atlanta	8.7	15	8.0	15	8.0	15	7.1	15	6.7	15	7.8	15
Chicago	8.6	30	6.9	30	7.8	30	6.8	30	6.3	30	6.0	30
Denver	9.2	20	7.5	18	8.2	20	7.0	20	6.7	19	6.4	20
Seattle	8.2	15	7.1	15	7.1	15	5.9	15	6.2	15	5.9	15
Responsibility												
Project expeditors and people with secondary energy project responsibilities	9.0	19	7.6	19	7.6	19	7.5	19	7.1	19	6.8	19
Project initiators and planners	8.8	32	7.6	32	7.5	32	6.5	32	6.2	32	6.0	32
People with primary energy project responsibilities	9.1	47	7.6	45	8.5	47	7.8	47	7.1	46	7.3	46
People with primary operations and maintenance responsibilities	8.1	22	6.9	22	7.7	22	6.7	22	6.7	22	6.2	22
Agency												
DOD	9.2	34	7.8	33	8.6	34	7.4	34	6.6	34	7.1	33
Big four	8.6	31	7.6	31	7.7	31	6.9	31	6.8	31	6.7	31
Second tier	8.7	31	7.1	30	7.9	31	7.7	31	7.0	30	6.3	31
Third tier	9.3	7	6.1	7	7.6	7	8.0	7	6.1	7	8.3	7
Federal contractors	8.6	17	8.0	17	7.5	17	6.4	17	6.9	17	5.9	17

Ease in having a FEMP SAVEnergy Audit performed

To assess the ease of using SAVEnergy Audits, we asked SAVEnergy Audit participants and aware SAVEnergy Audit nonparticipants to rate how difficult or easy they think it is to have a FEMP SAVEnergy Audit performed. Respondents could give the following five ratings: very difficult, somewhat difficult, neither easy nor difficult, somewhat easy, or very easy. The results are presented in Table 155.

Forty-four percent of aware SAVEnergy Audit nonparticipants think that it is somewhat difficult (36%) or very difficult (8%) to have a SAVEnergy Audit performed. The level of difficulty expressed by participants is lower (as one would expect given their experience with the process and program). Seventy percent of audit participants report that the process is somewhat or very easy to use. Only 19 percent of SAVEnergy Audit participants think that it is somewhat difficult (18%) or very difficult (1%) to have a SAVEnergy Audit performed.

Table 155 Ease in having a SAVEnergy Audit performed

Level of ease / difficulty	Percent of SAVEnergy Audit participants (N=77)	Percent of aware SAVEnergy Audit nonparticipants (N=107)
Very difficult	1	8
Somewhat difficult	18	36
Neither easy or difficult	10	8
Somewhat easy	35	40
Very easy	35	8

We asked those who said that having a FEMP SAVEnergy Audit performed was somewhat or very difficult the reasons for their rating. A summary of the results for SAVEnergy Audit participants and aware SAVEnergy Audit nonparticipants is presented in Table 156. More detailed responses are presented in Appendix B.

Of the 15 SAVEnergy Audit participants (19%) who said that having a FEMP SAVEnergy Audit performed was somewhat or very difficult, issues regarding hassles having to do with too much time and resources involved are cited most frequently. Of the 47 aware SAVEnergy Audit nonparticipants (44%) who said that having a FEMP SAVEnergy Audit performed was somewhat or very difficult, issues regarding the permission needed or involvement from others in a bureaucracy are cited most frequently. This suggests that barriers to participation among nonparticipants are internal to their organization.

Table 156 Reasons for rating FEMP SAVEnergy Audit as difficult to use

Reason	Percent of SAVEnergy Audit participants who rated as difficult to use (N=15)	Percent of aware SAVEnergy Audit nonparticipants who rated as difficult to use (N=47)
Hassle factor, too much time and resources involved	33	4
Need permission or involvement from others in a bureaucracy	13	30
Already have audit service from others right now	7	6
Building operations policies conflict with way audit conducted	7	0
Facility issues with security	7	4
Funding is lacking	7	9
Interest w/in our agency is low or management is reluctant	7	6
There is no or little need for service	7	2
Lack staff and resources / takes too many resources	0	9
Don't know enough about it	0	9
Other	13	17
Don't know	0	4

To understand these results better, we looked at distribution of those who thought that FEMP SAVEnergy Audits were difficult to use by stage of adoption, region, responsibility, agency, and federal contractors. These results are presented in Table 157.

SAVEnergy Audit participants and aware SAVEnergy Audit nonparticipants in the confirmation stage are more likely to think that FEMP SAVEnergy Audits are difficult to use. That is, 24 percent of participants and 51 percent of aware nonparticipants consider the FEMP SAVEnergy Audit process difficult, even after using audits multiple times. However, those that have used FEMP SAVEnergy Audit multiple times are much less likely to label the process difficult when compared to aware nonparticipants who have used non-FEMP audits.

SAVEnergy Audit participants in the Denver region and aware SAVEnergy Audit nonparticipants in the Chicago region are more likely to think that FEMP SAVEnergy Audits are difficult to use. Participants who are project expeditors and people with secondary energy project responsibilities and aware nonparticipants who are people with primary operations and maintenance responsibilities are more likely to think that SAVEnergy Audits are difficult to use. Participants and aware nonparticipants in the third tier agencies are more likely to think that SAVEnergy Audits are difficult to use.

Compared to participants in agencies, participants who are federal contractors are more likely to think that FEMP SAVEnergy Audits are difficult to use

Table 157 Percent rating use of FEMP SAVEnergy Audits as difficult by stage of adoption, region, responsibility, agency, and federal contractors

Segment	SAVEnergy Audit participants		Aware of SAVEnergy Audit nonparticipants	
	Percent rating as difficult to use	N	Percent rating as difficult to use	N
Overall	19	77	44	107
Stage of adoption				
Aware	NA	NA	39	36
Persuasion	100	1	50	6
Decision – no	NA	NA	36	11
Decision – yes	NA	NA	50	4
Implementation	8	25	42	24
Confirmation	24	51	52	26
Region				
Boston	0	3	25	8
Philadelphia	28	25	33	30
Atlanta	13	8	50	12
Chicago	0	16	59	27
Denver	46	13	38	16
Seattle	8	12	50	14
Responsibility				
Project expeditors and people with secondary energy project responsibilities	75	4	53	15
Project initiators and planners	14	22	38	29
People with primary energy project responsibilities	18	39	38	42
People with primary operations and maintenance responsibilities	17	12	57	21
Agency				
DOD	15	13	40	33
Big four	15	20	32	28
Second tier	17	29	44	28
Third tier	22	9	67	6
Federal contractors	50	6	53	15

Barriers to using FEMP SAVEnergy Audits

To assess the barriers to using FEMP SAVEnergy Audits, we asked SAVEnergy Audit participants and aware SAVEnergy Audit nonparticipants to rate the level of influence that various barriers have to the use of FEMP SAVEnergy Audits. The ratings were on a

1 to 10 scale, where 1 meant not at all a barrier and 10 meant a very substantial barrier. The results for participants are presented in Table 116, and the results for aware nonparticipants are presented in Table 117.

The average rating given by SAVEnergy Audit participants was less than five for nine of the 10 barriers addressed by the survey. Participants rate lack of funding to implement audit recommendations as the most substantial barrier. Fifty-seven percent of participants rate the influence of this barrier at 8 or higher, with 32 percent giving a rating of 10. On average, participants rate the influence of this barrier at 7.2. Participants rate dealing with the audit process as the least substantial barrier. Sixty-three percent of participants rate the influence of this barrier at 3 or lower, with 36 percent giving a rating of 1. On average, participants rate the influence of this barrier at 3.2.

Table 158 Barriers to using FEMP SAVEnergy Audits among participants

Level of influence	Percent of SAVEnergy Audit participants									
	Lack of funding to implement any audit recommendations (N=73)	Have already had audits (N=73)	Think that facilities are already energy efficient (N=73)	Audit recommendations are too limited (N=70)	Not believe that the audit recommendations will deliver enough savings (N=71)	Not enough choice in the contract or that can be used (N=68)	Organization has its own method for identifying energy improvements (N=73)	It means involving an outside agency (N=72)	Organization might move from the building (N=74)	Process is too complex (N=72)
10	32	7	3	4	4	3	1	6	5	0
9	7	3	3	4	3	4	6	3	4	1
8	18	10	15	7	10	7	12	4	7	3
7	12	7	6	9	4	9	1	8	1	8
6	3	7	4	3	7	7	6	3	3	8
5	10	11	18	14	6	6	10	7	8	8
4	7	6	3	7	6	7	10	4	4	8
3	3	10	8	17	21	12	11	11	10	13
2	6	10	10	13	11	12	7	15	14	14
1	4	32	32	21	28	32	37	39	45	36
Mean	7.2	4.2	4.1	4.1	3.8	3.8	3.7	3.4	3.3	3.2

The average rating given by aware SAVEnergy Audit nonparticipants was less than six for nine of the 10 barriers addressed by the survey. Aware nonparticipants rate lack of funding to implement any audit recommendations as the most substantial barrier. Sixty-two percent of aware nonparticipants rate this barrier at 8 or higher, with 42 percent giving a rating of 10. On average, aware nonparticipants rate the influence of this barrier at 7.5. Aware nonparticipants rate the possibility that their organization might move from the building as the least substantial barrier. Seventy-one percent of aware nonparticipants rate the influence of this barrier at 3 or lower, with 56 percent giving a rating of 1. On average, aware nonparticipants rate the influence of this barrier at 3.1.

Table 159 Barriers to using FEMP SAVEnergy Audits among aware nonparticipants

Level of influence	Percent of aware SAVEnergy Audit nonparticipants									
	Lack of funding to implement any audit recommendations (N=115)	Have already had audits (N=114)	Think that facilities are already energy efficient (N=113)	Audit recommendations are too limited (N=99)	Not believe that audit recommendations will deliver enough savings (N=110)	Not enough choice in the contract or that can be used (N=101)	Organization has its own methods for identifying energy improvements (N=114)	It means involving an outside agency (N=110)	Organization might move from the building (N=114)	Process is too complex (N=104)
10	42	13	9	3	6	4	14	5	4	5
9	6	2	2	1	4	2	5	4	4	0
8	14	14	8	6	7	6	11	6	6	8
7	6	13	8	4	6	8	13	5	7	3
6	6	1	9	3	4	3	4	7	0	4
5	13	19	17	31	21	23	11	16	9	14
4	1	4	5	4	6	2	2	6	0	5
3	4	11	4	10	11	10	13	10	4	12
2	2	4	12	16	13	19	9	10	11	14
1	7	18	27	21	23	24	18	33	56	36
Mean	7.5	5.3	4.5	3.9	4.3	3.9	5.3	3.8	3.1	3.4

To understand these results better, we compared the ratings on the influence of each barrier by the stage of adoption, ease of use, region, responsibility, agency, and federal contractors. These results for SAVEnergy Audit participants are presented in Table 160, and the results for aware SAVEnergy Audit nonparticipants are presented in Table 161.

The relative influence ratings among SAVEnergy Audit participants segregated by stage of adoption, ease of use, region, agency, and responsibility is similar to the ratings among participants overall (not segregated). For instance, lack of funding to implement any audit recommendations is rated as the most substantial barrier within all of the segments.

Table 160 Barriers to using FEMP SAVEnergy Audits among participants by stage of adoption, ease of use, region, responsibility, agency, and federal contractors

Segment	Lack of funding to implement any audit recommendations		Have already had audits		Think that facilities are already energy efficient		Audit recommendations are too limited		Not believe that the audit recommendations will deliver enough savings		Not enough choice in the contractor that can be used		Organization has its own methods for identifying energy improvements		It means involving an outside agency		Organization might move from the building		Process is too complex	
	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N
Overall	7.2	73	4.2	73	4.1	73	4.1	70	3.8	71	3.8	68	3.7	73	3.4	72	3.3	74	3.2	72
Stage of adoption																				
Aware	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Persuasion	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Decision – no	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Decision – yes	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Implementation	5.9	23	3.0	23	4.7	23	4.1	21	3.9	22	3.4	21	4.0	23	2.8	23	3.2	24	3.3	22
Confirmation	7.8	50	4.7	50	3.8	50	4.2	49	3.8	49	4.0	47	3.6	50	3.7	49	3.3	50	3.2	50
Ease of use																				
Difficult to use	7.4	14	5.2	14	4.6	14	4.9	14	5.1	14	5.6	11	4.9	14	4.3	14	5.1	14	4.1	14
Easy to use	7.0	51	4.0	52	3.9	52	4.1	51	3.4	51	3.4	50	4.0	52	3.5	51	2.9	52	3.0	51
Region																				
Boston	9.3	3	4.0	3	4.3	3	3.3	3	5.3	3	3.7	3	4.0	3	4.7	3	3.3	3	4.0	3
Philadelphia	7.7	24	4.7	23	4.1	23	4.9	23	3.8	22	4.1	21	3.7	24	3.0	24	3.0	24	3.3	24
Atlanta	7.0	7	2.4	7	2.6	7	2.1	7	2.0	7	1.7	6	2.0	7	2.6	7	3.6	7	2.6	7
Chicago	6.3	15	3.0	16	4.0	16	2.8	14	3.3	15	2.4	14	3.3	15	1.9	15	3.4	16	1.8	14
Denver	6.6	13	5.1	13	4.6	13	4.5	13	4.7	13	4.9	13	4.8	13	4.2	13	4.5	13	4.1	13
Seattle	7.6	11	4.8	11	4.6	11	5.4	10	4.4	11	5.3	11	4.3	11	5.8	10	2.2	11	3.8	11
Responsibility																				
Project expeditors and people with secondary energy project responsibilities	9.8	4	5.5	4	5.3	4	3.7	3	6.0	3	3.5	2	5.7	3	2.3	3	4.3	4	3.7	3
Project initiators and planners	7.3	20	4.1	20	3.4	20	3.3	20	3.9	20	3.8	19	3.4	20	3.4	19	3.1	20	2.7	20
People with primary energy project responsibilities	7.1	37	4.4	37	4.4	37	4.5	36	3.5	36	3.9	36	3.6	38	3.4	38	3.2	38	3.3	37
People with primary operations and maintenance responsibilities	6.5	12	3.3	12	4.1	12	4.6	11	4.1	12	3.6	11	4.3	12	3.9	12	3.6	12	3.8	12
Agency																				
DOD	7.4	13	4.6	13	4.8	13	4.3	11	3.2	13	3.8	12	5.5	13	3.8	12	2.9	13	3.2	13
Big four	7.3	19	3.8	19	4.8	19	3.1	18	4.1	18	3.4	18	3.6	18	2.9	18	3.8	19	2.8	18
Second tier	7.2	27	4.3	27	3.4	27	4.1	27	3.7	26	3.6	25	2.9	28	3.6	28	2.6	28	3.5	27
Third tier	7.0	9	4.2	9	4.0	9	5.6	9	4.3	9	4.9	8	4.1	9	3.2	9	3.7	9	3.7	9
Federal contractors	6.8	5	3.2	5	3.8	5	5.2	5	4.6	5	5.2	5	3.6	5	4.0	5	5.0	5	2.2	5

As with SAVEnergy Audit participants, the relative influence ratings among aware SAVEnergy Audit nonparticipants segregated by stage of adoption, ease of use, region,

agency, and responsibility is similar to the ratings among aware nonparticipants overall (not segregated). For instance, lack of funding to implement any audit recommendations is rated as the most substantial barrier within all of the segments.

Table 161 Barriers to using FEMP SAVEnergy Audits among aware nonparticipants by stage of adoption, ease of use, region, responsibility, agency, and federal contractors

Segment	Lack of funding to implement any audit recommendations		Have already had audits		Think that facilities are already energy efficient		Audit recommendations are too limited		Not believe that the audit recommendations will deliver enough savings		Not enough choice in the contractor that can be used		Organization has its own methods for identifying energy improvements		It means involving an outside agency		Organization might move from the building		Process is too complex	
	Me an	N	Me an	N	Me an	N	Me an	N	Me an	N	Me an	N	Me an	N	Me an	N	Me an	N	Me an	N
Overall	7.5	115	5.3	114	4.5	113	3.9	99	4.3	110	3.9	101	5.3	114	3.8	110	3.1	114	3.4	104
Stage of adoption																				
Aware	7.5	36	5.1	35	3.9	35	4.1	29	4.2	35	3.9	33	4.9	36	4.0	35	2.9	35	3.8	31
Persuasion	8.5	6	4.5	6	5.2	6	4.6	5	4.0	6	5.3	4	8.2	5	3.0	6	2.3	6	3.5	6
Decision – no	6.5	12	6.9	12	4.5	12	3.7	9	5.6	11	4.3	9	5.7	12	3.3	11	2.3	12	2.2	11
Decision – yes	6.8	4	3.3	4	4.3	3	4.0	4	4.3	3	4.3	4	5.3	4	5.3	4	3.3	4	5.0	3
Implementation	6.7	24	5.4	24	4.5	24	2.7	23	4.0	23	2.8	23	5.3	24	4.0	23	3.3	24	3.2	23
Confirmation	8.5	33	5.3	33	4.9	33	4.7	29	4.1	32	4.4	28	5.0	33	3.7	31	3.5	33	3.5	30
Ease of use																				
Difficult to use	7.7	45	5.1	45	4.7	44	4.1	40	4.8	42	4.1	41	5.7	44	4.0	45	3.1	45	4.0	42
Easy to use	7.3	50	5.9	49	4.9	49	4.0	46	4.2	50	3.7	45	5.9	51	3.8	47	3.2	49	3.2	46
Region																				
Boston	7.1	8	7.5	8	5.6	8	3.8	8	3.9	8	4.5	8	3.9	8	5.8	8	4.8	8	3.0	8
Philadelphia	7.0	30	4.7	29	5.3	28	3.9	26	4.0	27	4.0	26	4.9	30	3.6	30	3.5	29	3.1	27
Atlanta	8.3	15	5.1	15	3.3	16	3.6	13	4.4	14	3.1	13	5.9	16	3.6	14	2.4	15	3.4	14
Chicago	7.7	29	5.1	29	3.6	29	4.0	24	4.7	28	4.1	26	5.4	29	3.5	28	2.6	29	4.0	26
Denver	7.6	19	5.4	19	5.1	18	4.3	16	4.7	19	3.4	16	5.8	18	4.0	18	2.8	19	4.0	16
Seattle	7.6	14	6.0	14	4.4	14	3.8	12	3.5	14	4.4	12	5.0	13	4.2	12	3.1	14	2.6	13
Responsibility																				
Project expeditors and people with secondary energy project responsibilities	6.5	17	3.5	17	4.5	17	4.4	14	3.9	16	3.1	15	4.5	17	4.5	15	2.4	17	4.6	15
Project initiators and planners	6.9	32	5.7	32	4.8	31	3.3	31	3.7	31	4.4	31	5.9	31	2.9	32	3.6	32	2.9	29
People with primary energy project responsibilities	7.7	45	5.8	45	4.4	45	4.4	37	4.4	43	4.0	37	5.0	46	3.9	43	3.0	45	3.4	41
People with primary operations and maintenance responsibilities	9.0	21	5.2	20	4.0	20	3.6	17	5.2	20	3.7	18	5.4	20	4.7	20	2.9	20	3.4	19
Agency																				
DOD	7.6	34	5.1	34	4.4	34	4.7	28	4.1	34	3.7	29	5.4	34	3.6	31	3.6	34	3.0	30
Big four	7.1	30	5.5	30	4.1	29	3.0	27	4.2	29	3.2	27	5.5	29	4.3	30	2.5	30	3.3	28
Second tier	7.6	29	5.0	29	4.8	28	3.7	25	4.4	26	4.3	24	4.8	29	3.5	28	2.2	29	3.8	25
Third tier	6.4	7	6.3	7	4.7	7	4.5	6	4.5	6	5.0	7	3.6	7	5.0	7	1.9	7	2.7	7
Federal contractors	8.5	15	5.7	14	4.4	15	4.2	13	4.7	15	4.4	14	6.2	15	3.4	14	5.4	14	4.4	14

Types of people FEMP should approach when promoting SAVEnergy Audits

To provide FEMP input for use in SAVEnergy Audit promotion, we asked SAVEnergy Audit participants and aware SAVEnergy Audit nonparticipants to provide the titles of people in their organization that FEMP should approach when promoting SAVEnergy Audits. These results are presented in Table 162.

Both SAVEnergy Audit participants and aware SAVEnergy Audit nonparticipants most frequently recommend energy or environmental staff and specialists; facility-related managers, administrators, supervisors; and engineers as the best types of people for FEMP to approach when promoting SAVEnergy Audits.

Table 162 Types of people FEMP should approach when promoting SAVEnergy Audits

Contact	SAVEnergy Audit Participants (N=77)	Aware SAVEnergy Audit Nonparticipants (N=121)
Energy or Environmental Staff and Specialists	36	23
Facility-related Managers, Administrators, Supervisors	30	30
Engineers	16	28
Chief Executive Officers / Chief Operating Officers / Directors	4	4
General or Project Managers	4	4
Superintendents	3	3
Contracting, / Procurement / Purchasing Officers and Agents	1	1
Chief Financial Officers	1	1
Other	10	11
Don't know	5	6

Adds to more than 100% due to multiple responses

Summary of findings

- A large majority of SAVEnergy Audit participants report that they plan to continue using SAVEnergy Audits. Once a federal agency becomes an audit participant the probability that they will continue to participate is very high. However, there are cost and difficulty barriers associated with obtaining new participants.
- The more important reasons for using SAVEnergy Audit services include the ability to identify ways to reduce energy consumption and to comply with agency energy management plans.

- The majority of SAVEnergy Audit participants report that using SAVEnergy Audits is an easy process, however, many nonparticipants familiar with the SAVEnergy Audits report that they think the process is more difficult to use.
- Lack of funding to take the recommended actions is the most substantial barrier to using the FEMP SAVEnergy Audit program. For many customers, it makes little sense to have an audit if there are no funds to do something with the results.
- Audit participants suggest that FEMP target program marketing materials at energy or environmental staff and specialists; facility-related managers, administrators, supervisors; and engineers.

Recommendations

- Continue successful efforts to maintain awareness and use of FEMP SAVEnergy Audits. These efforts should utilize more extensive, ongoing customer follow-up contact because once a federal agency becomes a SAVEnergy Audits participant, the probability that they will continue to participate is very high. This contact can help maintain the use of SAVEnergy Audits as part of the agency planning process.
- Continue successful efforts at ensuring that the SAVEnergy Audit program is easy to use. Reduce the impact of hassle and cost barriers, where possible.
- Work with agencies to increase awareness of FEMP funding programs and services, as lack of funding to take the recommended actions is the most substantial barrier to using FEMP SAVEnergy Audit program.
- Marketing for the SAVEnergy Audit program should highlight the program's ability to (1) identify ways to reduce energy consumption and (2) comply with agency energy management plans.
- Target program marketing materials at energy or environmental staff and specialists; facility-related managers, administrators, supervisors; and engineers.
- Conduct more in-depth customer evaluations that focus specifically on obtaining more detailed information on the barriers to using SAVEnergy Audits and the ways that these barriers can be overcome. This information can then be used by FEMP to develop and test operational designs and procedures to help eliminate these barriers. This can be accomplished through the use of focus groups or in-depth interviews with key participants and nonparticipants.

11. FEMP SAVEnergy Audit Process Issues

Process issues pertaining to FEMP SAVEnergy Audits are presented in this chapter. These issues include use of SAVEnergy Audit recommendations, satisfaction with specific aspects of SAVEnergy Audit, and suggestions for FEMP to improve SAVEnergy Audits.

How participants use FEMP SAVEnergy Audit recommendations

To assess how participants use FEMP SAVEnergy Audit recommendations, we asked SAVEnergy Audit participants if:

- FEMP or audit staff gave them suggestions on how to use project financing from FEMP ESPCs to implement audit recommendations
- Audit recommendations lead to the use of FEMP ESPCs
- Audit recommendations are being delivered to the right person at their organization.

These results are presented in Table 163.

Fifty-three percent of SAVEnergy Audit participants report that they received suggestions from FEMP or auditing staff on how to use project financing from FEMP ESPCs to implement audits, and 30 percent say that the audit recommendations lead to ESPC usage. These results show the potential for increasing participation in FEMP programs through cross-program marketing.

Table 163 Use of FEMP SAVEnergy Audit recommendations

	Percent of SAVEnergy Audit participants (N=77)
Received suggestions from FEMP or auditing staff on how to use project financing from ESPCs to implement audit recommendations	53
Audit recommendations lead to use of ESPCs	30
Audit recommendations being delivered to right person at organization	88

In addition, 88 percent of SAVEnergy Audit participants say that the audit recommendations are being delivered to the right person within their organization. The nine SAVEnergy Audit participants who indicated that the audit recommendations are not being delivered to the right person were asked who should be receiving them (Table 164). Facility related managers, administrators, or supervisors; chief executive officers,

chief operating officers, or directors; and energy or environmental staff and specialists are cited most often.

Table 164 Who should be receiving FEMP SAVEnergy Audit recommendations

Contact	Percent of SAVEnergy Audit participants who said that audit is not being delivered to right person (N=9)
Facility related managers, administrators, supervisors	22
Chief Executive Officer)/Chief Operating Officer/Director	11
Energy or environmental staff and specialists	11
Other	22
DK	33

Satisfaction with aspects of FEMP SAVEnergy Audits

To assess satisfaction with FEMP SAVEnergy Audits, we asked SAVEnergy Audit participants to rate their satisfaction with six aspects of the program. The ratings were on a 1 to 10 scale, where 1 meant very dissatisfied and 10 meant very satisfied. The results are presented in Table 165.

On average, SAVEnergy Audit participants rate three of the six aspects (the ease of understanding the written audit report, the knowledge and skills of the FEMP auditing team, and the practicality of audit recommendations for the facility) addressed by the survey higher than 8. These are very good satisfaction ratings and indicate that audit participants are satisfied with these aspects. SAVEnergy Audit participants rate satisfaction the highest for the ease of understanding the written audit report and the knowledge and skills of the FEMP auditing team. Over 85 percent of participants rate their satisfaction with these two aspects at 8 or higher, with more than 26 percent giving a rating of 10. On average, participants rate their satisfaction with these two aspects at 8.4.

On average, SAVEnergy Audit participants rate three of the six aspects (project follow-up and support from FEMP after the audit, the amount of time from when first requested an audit to when recommendations were delivered, and the way the audit addressed indoor air quality issues) addressed by the survey at or below 7. Because the average satisfaction ratings are less than 8 for these aspects, FEMP managers may want to identify program design changes that can help increase agency satisfaction ratings among SAVEnergy Audit participants. Participants rate satisfaction the lowest for the way the audit addressed indoor air quality issues. Fifty percent of SAVEnergy Audit participants rate their satisfaction with this aspect of SAVEnergy Audits at 8 or higher, with 1 percent giving a rating of 10. On average, participants rate their satisfaction with this aspect at 6.5. It is important to note, however, that assessing indoor air quality is not a requirement of the current audit process.

Table 165 Satisfaction with aspects of FEMP SAVEnergy Audit

Satisfaction rating	Percent of SAVEnergy Audit participants					
	Ease of understanding of the written audit report (N=68)	Knowledge and skills of the FEMP auditing team (N=66)	Practicality of audit recommendations for facility (N=69)	Project follow-up and support from FEMP after the audit (N=54)	Amount of time from when first requested an audit to when recommendations were delivered (N=59)	Way the audit addressed indoor air quality issues (N=56)
10	27	26	28	17	10	11
9	18	18	12	6	5	9
8	41	41	35	39	34	30
7	7	6	10	9	7	11
6	3	5	9	7	17	9
5	2	3	6	7	14	7
4	2	0	0	2	7	4
3	2	0	0	4	3	7
2	0	2	1	4	0	4
1	0	0	0	6	3	9
Mean	8.4	8.4	8.1	7.1	6.8	6.5

We asked SAVEnergy Audit participants who gave a satisfaction rating of 7 or less the reasons for their rating. A summary of these results is presented in Table 166 through Table 171. More detailed responses are presented in Appendix B.

Of the 10 SAVEnergy Audit participants (16%) who gave a rating of 7 or less for the ease of understanding audit report, issues regarding the report being complicated and difficult to understand are cited most frequently.

Table 166 Reasons for rating satisfaction with ease of understanding audit report at 7 or less

Reason	Percent of SAVEnergy Audit participants who gave a rating of 7 or less (N=10)
Complicated and difficult to understand	40
Good job, done by FEMP	20
Usefulness lacking	20
Lack knowledge, experience, expertise	10
Written audit report was cursory	10

Of the 10 SAVEnergy Audit participants (16%) who gave a rating of 7 or less for the knowledge and skills of auditing team, issues regarding the lack of knowledge, experience, and expertise of staff are cited most frequently.

Table 167 Reasons for rating satisfaction with knowledge and skills of auditing team at 7 or less

Reason	Percent of SAVEnergy Audit participants who gave a rating of 7 or less (N=10)
Lack knowledge, experience, expertise	30
FEMP adds little to help/contribute	20
Good job, done by FEMP	10
Don't know enough about it	10
Other	20
Don't know	10

Of the 18 SAVEnergy Audit participants (26%) who gave a rating of 7 or less for the practicality of audit recommendations, issues regarding the recommendations not being applicable, useful or accurate are cited most frequently.

Table 168 Reasons for rating satisfaction with practicality of audit recommendations at 7 or less

Reason	Percent of SAVEnergy Audit participants who gave a rating of 7 or less (N=18)
Recommendations not applicable, useful or accurate	28
FEMP did a good job with audit recommendations	11
Low payback	11
Auditors more interested in getting paid than in our savings	6
Expected bigger projects and recommendations w/more savings	6
Funding is lacking	6
It took too long to get the audit recommendations	6
Recommendations are too expensive to implement	6
Recommended motion sensors which require extra maintenance	6
We did implement some of the recommendations	6
Don't know enough about it	6
Don't know	6

Adds to more than 100% due to multiple responses

Of the 21 SAVEnergy Audit participants (39%) who gave a rating of 7 or less for the project follow-up and support from FEMP, issues regarding no or little follow-up or responsiveness from FEMP are cited most frequently.

Table 169 Reasons for rating satisfaction with project follow-up and support from FEMP at 7 or less

Reason	Percent of SAVEnergy Audit participants who gave a rating of 7 or less (N=21)
No or little follow-up or responsiveness from FEMP	81
It is a new process	5
Too slow or too much time involved	5
Other	5
DK	5

Of the 30 SAVEnergy Audit participants (51%) who gave a rating of 7 or less for the amount of time for audit process, issues regarding the process being too slow or too much time involved are cited most frequently.

Table 170 Reasons for rating satisfaction with amount of time for audit process at 7 or less

Reason	Percent of SAVEnergy Audit participants who gave a rating of 7 or less (N=30)
Too slow or too much time involved	80
Contractor was not responsive	3
Contractual issue with government	3
Good job, done by FEMP	3
Lack knowledge, experience, expertise	3
Don't know enough about it	3
Don't know	3

Of the 28 SAVEnergy Audit participants (51%) who gave a rating of 7 or less for the way the audit addressed indoor air quality issues, issues regarding the audit not addressing indoor air quality enough or at all are cited most frequently. It is important to note, however, that assessing indoor air quality is not a requirement of the current audit process.

Table 171 Reasons for rating satisfaction with the way the audit addressed indoor air quality issues at 7 or less

Reason	Percent of SAVEnergy Audit participants who gave a rating of 7 or less (N=28)
The audit did not address indoor air quality enough	50
The audit did not address indoor air quality at all	32
Indoor air quality is not an important issue for us	11
FEMP did a good job of addressing in-door air quality	4
Don't know	4

Suggestions for improving FEMP SAVEnergy Audits

To provide FEMP input for improving SAVEnergy Audits, we asked SAVEnergy Audit participants to suggest improvements for the program. A summary of the results is presented in Table 172. More detailed responses are presented in Appendix B.

Fifty-seven percent of the 77 SAVEnergy Audit participants who were asked to provide suggestions indicated that they did not know what FEMP could do to improve the program (18%) or said that they had no suggestions (39%). Suggestions regarding the audit needing improvement because service and follow-up is too slow or not responsive are made most frequently. Other common suggestions include broadening facilities or technologies covered by audit, having more coverage or money behind funding, and needing to increase the expertise and quality of audit service

Table 172 Suggestions for FEMP to improve SAVEnergy Audit

Suggestion	Percent of SAVEnergy Audit participants (N=77)
Audit service and follow-up is too slow or non-responsive	10
Broaden facilities or technologies covered by audit	9
Funding needs more coverage or money behind it	7
Need to increase the expertise and quality of audit service	5
Audit needs to be more in-depth	3
Low quality or inexperienced service/audit	1
Simplify or make easier to understand audit	1
Don't know enough about it	3
Other	4
None	39
Don't know	18

We also asked SAVEnergy Audit participants to provide suggestions on what FEMP can do to help speed the implementation of audit recommendations or get more recommendations implemented. A summary of the results is presented in Table 173. More detailed responses are presented in Appendix B.

Fifty-two percent of the 77 audit participants who were asked to provide suggestions indicated that they did not know what FEMP could do to improve the program (49%) or said that they had no suggestions (3%). Suggestions regarding increasing funding for auditing, improving the information and knowledge of auditors, and increasing the efficiency and speed of service are made most frequently.

Table 173 Suggestions for FEMP to facilitate implementation of audit recommendations

Suggestion	Percent of SAVEnergy Audit participants (N=77)
Funding for auditing needs to be increased	17
Information and knowledge of auditors needs increasing	12
Increase efficiency and speed of service	8
Promote, market, and target program better	3
Better monitoring of service needed	1
Competition issue needs to be dealt with	1
Have GSA agree to longer contracts	1
Need a universal benchmark and more general recommendations	1
The audit is good as is	1
Other	3
None	3
Don't know	49

Summary of findings

- Fifty-three percent of audit participants report that they received suggestions from FEMP or the FEMP auditing staff about how to use project financing ESPCs to implement audit recommendations, and 30 percent report that the audit recommendations lead to ESPC participation. These results show the potential increasing participation in FEMP programs through cross-program marketing.
- Audit participants say that the audit is currently being delivered to the right people in their organization.
- Participants rate satisfaction with three of the six aspects (the ease of understanding the written audit report, the knowledge and skills of the FEMP auditing team, and the practicality of audit recommendations for the facility) addressed by the survey higher than 8 on a 10 point scale. These are very good satisfaction ratings and indicate that audit participants are satisfied with these aspects.

- Participants rate three of the six aspects (project follow-up and support from FEMP after the audit, the amount of time from when the audit was first requested to when recommendations were delivered, and the way the audit addressed indoor air quality issues) addressed by the survey at or below a score of 7 on a 10-point scale. Because the average satisfaction ratings are less than 8 for these aspects, FEMP managers may want to identify program design changes that can help increase these satisfaction ratings.

Recommendations

- Continue to capitalize on the opportunities that the SAVEnergy Audit program provides for marketing other FEMP services.
- Improve follow-up and ongoing support to customers after the audit is complete. Agencies want project support that is fast, efficient, and customized to their needs. FEMP should consider designing adaptive project follow-up support for (1) optional customized follow-up technical advice, analysis, and assistance and (2) a system for helping customers identify additional opportunities for savings that is linked to the audit service.
- Shorten the period of time that elapses between the time the audit is requested and the delivery of recommendations.
- If not currently implemented in each regional office, have SAVEnergy Audit participant data forwarded to regional ESPC managers. Regional ESPC managers can then review the SAVEnergy Audit report and recommendations for each participant to more effectively market ESPC services to SAVEnergy Audit participants.

12. Study Methodology

Interviews with staff

During the initial planning stages of the 2001 FEMP customer survey TecMRKT Works conducted interviews with key FEMP managers to identify areas of focus for the study. Interviews were conducted with twelve FEMP managers. The goals of the interviews were to:

- Gain a more detailed understanding of FEMP programs and activities
- Identify issues about which senior staff would like to have more information and especially issues that might be addressed in the FEMP-wide survey that is to be conducted in the near future.

The interviews were conducted in early November 2000. Interviews ranged in length from approximately 30 minutes to an hour and a half. The interviews were unstructured but were focused on program implementation issues and information needs. Interview guides were designed by TecMRKT Works and reviewed and approved by Sandia and FEMP managers prior to their use.

The people interviewed included Beth Shearer, Joan Glickman, Rick Klimkos, Annie Haskins, Nellie Greer, Katie McGervey, Tanya Sadler, Theodore Collins, Anne Crawley, Shawn Herrera, Tatiana Muessel, and Brad Gustafson. Additional contacts were made with FEMP headquarters, regional, and field implementation staff, as need, to clarify issues expressed during the management interviews or to obtain program-specific information to aid the survey development process.

The results of these interviews were used to create a list of researchable issues and draft questions for possible inclusion in the customer survey. The list of issues developed during the interviews was extensive in their scope and provided a starting place from which the initial draft surveys could be developed. The list of issues identified during the management interviews is presented in Appendix D.

Survey development process

Because of the number of issues identified for potential inclusion in the customer survey it was necessary to prioritize and select the issues to be included in the survey. This effort involved a series of meetings between FEMP management staff, the Sandia National Laboratories project manager and TecMRKT Works project staff. During these meetings survey issues were prioritized and draft questions were designed focusing on the high-priority issues. These questions were then finalized and sequenced for inclusion in early draft survey instruments.

Draft surveys were developed in modules with each module focusing on a specific research goal or group of goals associated with a comment theme. The modules were

then linked into a single survey so that survey respondents, regardless of the level of involvement in FEMP, could be given what appeared to be a single seamless survey, rather than five different surveys. While this complicated the survey development and implementation process, it made it possible to implement multiple surveys, across multiple programs and issues, during a single telephone interview.

This multi-step module approach helped obtain general FEMP information from all surveyed customers and program-specific information from customers who have participated in one or more FEMP services.

Following the development of the initial draft modules the survey development team worked to reduce the scope of the modules so that they could be conducted during an interview lasting between 15 and 35 minutes, depending on the program services used by the respondent. This process reduced the draft survey length from about 60 minutes to on average, about 25 minutes survey.

The survey used in this study is presented in the Appendix A.

Survey implementation process

The survey was implemented by TecMRKT Works and Quick-Test Inc. Survey contacts were coded from the contact database, into a computer aided terminal entry telephone interview system (CATI), allowing automatic roll-ups of new survey contacts as each survey is completed. The survey itself was also coded into the CATI system so that all five modules are linked via filter questions. As respondents answer specific filter questions about their FEMP experiences and opinions, the program automatically selects the right group of questions within the five survey modules to display on the interview screen. This system permits on-going reviews of survey data and instant tracking of survey progress within minutes of a completed call.

Each day of first week of the survey the response data was examined by TecMRKT Works to assure that the data was obtained and processed as planned. In addition, TecMRKT Works conducted preliminary assessments of the quality of the data to assure that responses were appropriate for the questions being asked. This examination assures that the database is consistent with the question sequencing and that the linking systems between the CATI program and the analysis programs are consistent. This examination process was conducted weekly during the interview process to assure both data quality and survey control. Following these examinations TecMRKT Works prepared weekly progress reports for the Sandia and FEMP project managers.

Also, during the survey implementation process, weekly progress meetings were held between the TecMRKT Works, project staff, the Sandia National Laboratory project manager and the FEMP project manager. These meetings focused on the survey progress and issues associated with the implementation and completion of the survey.

The survey process was conducted over a six-week period beginning the week of March 26, 2001 and ending May 8, 2001. Following completion of the survey the data was reviewed, cleaned, and used to drive the analysis presented in this report. Eight hundred and eleven surveys were completed.

Sampling population

The survey goal was to draw a sample of participating customers and a similar sample of Federal Government Employees who are potentially customers of FEMP. In order to draw a sample, we needed lists of FEMP customers and prospective customers. FEMP does not have a comprehensive list of its customers nor does it have, for the most part, a list of government employees who have responsibilities for energy. However, various offices throughout FEMP do have lists of customers who have participated in specific programs or represent specific constituencies. For example, there are lists of customers who have taken various training programs, there is a list of customer who receive *FEMP Focus*, there is a list of people who have had audits, and the regional offices have lists of their contacts.

In the absence of comprehensive lists of contacts, we determined that we needed to assemble a list of as many contacts as possible. Starting with a preliminary list of about 20 databases that we compiled during the staff interviews, the FEMP program manager tracked down 54 different files containing names of contacts. These files came from the regions, national laboratories, headquarters, and the program offices at headquarters.

In order to deal with the data, we created a relational database in ACCESS 2000. Initially, the database contained two tables, a source table and a contacts table. The source table has a series of fields that we used to track the source data files. There is a record for each data file in the source table.

The second table in the database is the contact table. The contact table has fields such as name, address, agency, telephone number, etc, that are needed to track a particular contract. The contact table also has a field that links each contact to the original database, a unique identifier that allows us to trace the record to a specific record in the original database, and a unique identifier that identifies each record in the contact table. The contact record also has a field that allows us to identify the type of program from which the record was obtained, for instance, financing or training. Of course, for lists that came from sources that are not program related, for example, a list from a regional office, we do not have information.

When a file was received, some initial formatting was completed to make it compatible with the contact table and then the data were read into an Access table. The relevant fields were then extracted and appended to the contact file. If the file contained additional information that was not relevant to building a contact file that was saved in a separate table in case we wanted to recover the data later.

We received a total of 54 files from FEMP. When the records in these files were combined there were about 33,000 names and addresses. Because many contacts appeared on more than one list or appeared multiple times in one list, there were a high number of duplicates. For each record in the contact table, we constructed an additional identifier field that is a combination of the last name of the contact and the telephone number. If there was no telephone number the zip code was used instead. Each record with the identical last name and telephone number (or zip code in the case of missing data) has the same identifier number.

Using the find duplicate feature in Access we extracted the duplicate records. We then ordered the duplicate records by the identifier field and examined these records by hand. We eliminated all of the duplicate records except for one. In deciding which record to choose, we chose a record that we felt had the best information to represent the contact. Thus, if address information was missing in one record, we chose another record with address information to represent the individual. In some instances we synthesized records if different pieces of information were missing. In a case where we might have a person with several different internal addresses, we tried to choose a record that appeared to have the most general and serviceable address, for example, a P. O. Box. In cases where we could not tell for sure we simply selected one of the records.

If there were spelling errors in the last name or slight discrepancies in the telephone numbers, the identifiers would not be the same. However, we were often able to quickly associate those records because they appeared in close proximity to each other because they were sorted by identifier. Likewise, we were often able to spot a record with an incorrect digit in the telephone number and coordinate that record with other records for that person. We were also able to spot records where a telephone number had changed. In some instances because of our knowledge of the population, we were able to eliminate out-of-date records. This initial pass significantly reduced the number of duplicate records and eliminated some out-of-date records. We then combined the set of “unique” records that we created from the duplicates with the set of unique records from the original data file. Once again we made a pass through the data looking for records for the same person that might be slightly different. When this pass was completed we had eliminated most but not all duplicates.

There were still some duplicate telephone numbers. Most of these were instances where different people had provided a general office telephone number. For example, we had three different people from GSA with the same telephone number. In one instance, we found the same telephone number listed for nearly 100 people. This was a case where a single point of contact telephone number has been listed for personnel from military bases throughout the country.

At this point in our efforts to develop the sample, we created two new fields. The contact table contained fields that indicate the individual’s agency, organization, or firm. Because the data has been provided by many different sources, it had been entered in many different ways and was not consistent within the existing databases. To overcome this problem, we created two new organizational fields, one for the main organization and

one for sub-organization identification. For example, people with the Department of Defense were identified as being with DOD, and if the branch of DOD was known, they were identified as being with one of the services such as the Army or Navy. Table 174 shows the count of records by organization. The table has two subheadings, US Government Agencies and Organizations and Non-Federal Organizations and Agencies. About two thirds of the contacts are for the Federal Government and one-third represent other organizations.

Table 174 Count of records in FEMP sample population by organization type

Agency or organization	Number of records	Percent of total records
<i>US Government Agencies</i>		
DOD	2,613	19
USDA	1,122	8
DOE	708	5
DOI	591	4
GSA	501	4
DOT	476	3
VA	396	3
DHHS	222	2
USPS	204	1
DOJ	159	1
EPA	127	1
DOC	110	1
TRSY	104	1
NASA	96	1
DOL	87	1
DOS	66	0
DHUD	30	0
Power Administration	11	0
SI	11	0
FDIC	7	0
GPO	7	0
HUD	7	0
AOC	6	0
FEMA	5	0
GAO	5	0
<i>Non-federal agencies and organizations</i>		
Private businesses	2,480	18
Utilities	665	5
Local municipalities	480	3
States and state	443	3
Universities	303	2
Non-profit organizations	224	2
Foreign	34	0
Other classifications	62	0
Unclassifiable	1,710	12
Total	14,072	100

In addition, we examined the geographic distribution represented by the records (see Table 175) at the end of this document. California had the most records, followed by Illinois. Not surprisingly, Washington, D. C., Maryland, and Virginia were high on the list. The most contacts were identified in the Chicago Region, followed by Seattle, Philadelphia, Atlanta, and Boston.

Table 175 Count of unique persons by state and regional offices

Region and state	N	Percent
<i>Chicago</i>		
IL	926	7
OH	708	5
MO	612	4
MN	469	3
MI	462	3
WI	447	3
IA	380	3
IN	366	3
<i>Seattle</i>		
CA	1,111	8
WA	721	5
OR	230	2
AK	229	2
HI	163	1
AZ	201	1
ID	121	1
NV	95	1
<i>Philadelphia</i>		
DC	839	6
VA	697	5
MD	474	3
PA	404	3
NJ	171	1
WV	46	0
DE	19	0
<i>Denver</i>		
TX	435	3
CO	388	3
NM	146	1
UT	101	1
KS	85	1
NE	48	0
OK	86	1
LA	78	1
MT	41	0
ND	27	0
WY	20	0
SD	12	0

Region and state	N	Percent
<i>Atlanta</i>		
GA	225	2
FL	399	3
TN	138	1
AL	137	1
NC	121	1
SC	100	1
AR	84	1
KY	38	0
MS	36	0
PR	29	0
<i>Boston</i>		
NY	356	3
MA	234	2
CT	75	1
ME	41	0
RI	40	0
NH	33	0
VT	24	0
<i>Other</i>		
AE	64	0
AP	50	0
AA	12	0
Other classification	66	0
Not classified	412	3
Total	14,072	100

For our sample, we wanted Federal government employees and contractors employed by the Federal government. We wanted to eliminate FEMP employees and persons from other organizations who might have participated in FEMP programs to gain information for use in other market segments, local and state government, for instance. Thus, we dropped all of those listed as being related to other agencies except for private businesses. Some of the private businesses were acting as contractors to the Federal government to manage building. We used a screening question at the beginning of the survey to eliminate any of these that did not have contracts to manage Federal facilities.

At this point, we had a sample population of approximately 10,000. We assigned each person in this population a random number.

Sample Design

Our original sample design called for us to compile the list of participants and nonparticipants and then complete a random sample of 400 of each of these groups. In addition, we were to complete interviews with a statistically significant sub-sample of ESPC participant and SAV Energy Audit participants sufficient to provide results accurate to ± 5 percent at the 95 percent confidence level.

After our initial analysis of the sample population and information received from FEMP staff, we established the quotas in order to achieve statistically significant results (Table 176).

Table 176 Survey quotas

Type of respondent	Quota
Participant sample	400
Nonparticipants	400
ESPC over-sample	67
SAVEnergy Audit over-sample	177

Based on this we identified four sampling strata

1. A general sample of people who were known to have participated in any FEMP program other than ESPC and SAVEnergy and anyone in our list who we could not identify as either a participant or nonparticipant.
2. A group of people who were known to have participated in ESPC.
3. A group of people were known to have participated in the SAVEnergy program.
4. A group of people who were thought to have not participated in FEMP programs.

With all of these preliminaries completed, we randomly ordered the sample population and then screened the population one last time. During this screening, we removed any DOE or DOE contractor employees that we could identify that had FEMP program obligations, any members in the sample population without telephone numbers, and any other people on the lists that were not FEMP customers. This last group included Congressional and White House staff and others. In screening DOE and national laboratory employees, we erred on the side of inclusiveness. Many DOE and national laboratory employees manage facilities. If we could not tell whether they were related to facility management or program implementation, we left the name in the sample and relied on the screening mechanism at the beginning of the survey to eliminate people who should not be in the sample.

One of our primary concerns was that we had identified a very small number of nonparticipants. As it turned out, there were many nonparticipants in our population of people with unknown status, so there was no difficulty in filling the nonparticipant quota. Although we had sufficient numbers of sites to reach the quotas for ESPC and SAVEnergy Audit, we often did not have a good contact name and/or a telephone number and therefore we had to drop many of these sites from the sample. This made it difficult to reach our quotas in these areas.

The survey house was instructed to make up to six calls to each contact before replacing the contact with a new sample point. We found that many of the people we were attempting to contact were often not at their desks. The number call backs was later increased to 10.

Another concern that we had about the data was its age and the quality of the information. We assumed that we would lose many of the people in our sample because of job changes, attrition, and other causes.

Survey procedures

Once the development of the survey was completed, the survey was sent to a programmer who programmed the survey for the computer-aided telephone interviewing system (CATI). The CATI programmer provided a runtime copy of the survey that was used to test the survey to ensure that the skip patterns were working correctly. This particular survey has a large number of very complicated skip patterns in it. After some minor adjustments, the survey was sent to the survey house where the survey takers tested the program by asking the questions of each other.

When in operation, the CATI system presents the survey taker with the name of a respondent and, when the survey taker is ready, dials the number. If no one answers, a callback is scheduled. If the survey taker reaches a telephone answering machine, the survey taker has the option of leaving a message asking that respondent call an 800 number or hanging up and rescheduling the call. In this survey, the survey takers were instructed not to leave messages until two or three attempts had been made to reach the respondent. When someone answers the telephone, the survey taker begins the survey screening procedures. The procedures are designed to allow the survey taker to determine if the correct person is on the line, to determine a good time for a call back if someone is not available, to determine if the person is no longer at the telephone number and to deal with other situations. At the conclusion of the call, the system registers a completed call or allows the survey taker to reschedule the call at another time, mark the sample point as a refusal, a wrong number, a fax or computer line, or some other outcome.

Prior to starting the survey, the survey takers were provided with training. The training consisted of two phases. In the first phase of training, the survey takers used the CATI system to interview each other. This involved reading the questions to each other from the CATI screen and learning how the skip patterns in the survey varied. In the second phase of the training, the survey takers were given a briefing on FEMP and its programs. This part of the training was designed to give the survey takers a view of the bigger picture and to help them understand the programs and the language of the programs so that they could make intelligent responses and choices if asked a question by a respondent. This part of the training lasted about six hours and included a hand-out, a question and answer session, and the monitoring of the first few calls.

Limitations of using the FEMP study findings

A discussion of some of the limitations of the FEMP-wide customer survey and the use of survey results is presented below.

Nationally reliable findings

The sample was drawn to provide a set of findings for selected government-wide FEMP activities that are precise to within ± 5 percent of the values presented in the survey. Thus, we can describe with great confidence all survey information included in the FEMP-wide survey that applies to FEMP customers as a single group. The FEMP-wide information is very reliable as a single survey of a single group of FEMP customers. The sample was not drawn to be reliable at the USDOE regional level or at the user agency level.

Program level findings

The sample was also drawn so that statistically significant conclusions about the ESPC program and the SAVEnergy Audit program can be reported with a good degree of reliability. The ESPC sample consisted of 101 participants, 117 nonparticipants who knew about FEMP performance contracting program, and 146 who did not. The SAVEnergy Audit sample consisted of 77 participants, 113 nonparticipants who knew about FEMP SAVEnergy Audits, and 178 nonparticipants that did not.

Agency level findings

The sample was not structured so that results for individual agencies can be reported at the same level of precision as the national level. For this reason, we have worked with FEMP managers to group agencies so that some findings can be reported for key groups of agencies. With the existing sample, we can report the characteristics of the first three of the following groups with a good degree of precision because the sample sizes are sufficient to support the findings presented.

1. DOD
2. GSA, VA, USPS, and DOE, which we refer to as the *big four* agencies
3. DHHS, DOC, DOI, DOJ, DOT, NASA, and USDA, which we refer to as *second tier* agencies
4. AOC, BBG, CIA, CPSC, DHUD, DOL, DOS, EPA, FDIC, FEMA, GAO, GPO, SI, SSA, and TRSY, which we refer to as *third tier* agencies

DOE regional analysis

The sample was not structured so that results for individual USDOE regions can be reported at the same level of precision as the national level. At the DOE regional level the samples are of sufficient size so that the analysis for the participant group is reasonably rigorous for all regions except the Boston region for general FEMP-wide questions. However, regional analysis for ESPC and SAVEnergy Audits should be considered “advisory” because of the low sample sizes for each region. For the nonparticipants there are too few contacts, except for the Chicago region, to place a great deal of faith in the survey results at the regional level for FEMP-wide responses and for ESPC and SAVEnergy Audit questions. The nonparticipant responses at the regional level should be considered advisory.

The Chicago regional office had the most complete data on nonparticipants and we included all of these contacts in our nonparticipant survey. The survey sample included over 220 completed surveys of nonparticipants from the Chicago region compared to only about 32 for the Atlanta region and about 16 for the Boston office.

The DOE regional assessments for ESPC and SAVEnergy Audits presented in the report, especially for nonparticipants, should be used as indicators of differences and should be combined with other sources of information to draw conclusions about what is happening in the regions. (Note: as discussed earlier in this chapter, the ESPC and SAVEnergy Audit samples included all contacts that were provided by the regional offices. To conduct more rigorous regional analysis FEMP must track and report all customer contacts so that these contacts can be contacted and interviewed. The Chicago office provided the most extensive contact lists and therefore has the most reliable survey results.) The report chapters are presented below in groups designating if the regional data can be used as reported, or if the regional data should be used as indicators and combined with other regional information when available.

Chapters where regional data analysis is more rigorous:

- Chapter 2: Awareness and Use of FEMP Services
- Chapter 3: Contact and Satisfaction with FEMP
- Chapter 4: Project Implementation and FEMP Influence
- Chapter 5: Project Needs and Possible FEMP Roles

Chapters where regional data analysis should be used as indicators (except Chicago, where data analysis is more rigorous):

- Chapter 6: ESPC Impact Issues
- Chapter 7: ESPC Market Issues
- Chapter 8: ESPC Process Issues
- Chapter 9: SAVEnergy Audit Impact Issues
- Chapter 10: SAVEnergy Audit Market Issues
- Chapter 11: SAVEnergy Audit Process Issues

Summary of findings

- The Chicago regional office was able to provide more detailed contact lists for both program participants and nonparticipants. This significantly aided the survey process, especially the ability to contact nonparticipants. The differences between the comprehensiveness of the contact lists obtained from the regional offices demonstrates the importance of building and maintaining good agency contact data for both program marketing and documentation.
- The sample was drawn to provide a set of findings for selected government-wide FEMP activities that are precise to within ± 5 percent of the values presented in the

survey. The FEMP-wide information is very reliable as a single survey of a single group of FEMP customers. The sample was also drawn so that statistically significant conclusions about the ESPC program and the SAVEnergy Audit program can be reported with a good degree of reliability. The sample, however, was not drawn to be reliable at the USDOE regional level or at the user agency level.

- The FEMP participant sample appears to represent a good cross-section of agencies based on levels of energy use, agency size, and use of FEMP services. The sample appears to accurately reflect the opinions and perspectives of the full range of FEMP customers.