DOE/OR/22107--T1

Energy Efficiency and Renewable Energy Network (EREN)

Customer Satisfaction Survey

Alice V. Anderson, Principal Investigator
Information International Associates, Inc.

David P. Henderson
U.S. Department of Energy
Office of Scientific and Technical Information

PREPARED BY

Information International Associates, Inc.
Oak Ridge, TN 37831

UNDER THE DIRECTION OF

U.S. Department of Energy
Office of Scientific and Technical Information

APRIL 22, 1996

Energy Efficiency and Renewable Energy Network (EREN)
Customer Satisfaction Survey

Table of Contents

DISCLAIMER

APPENDICES

List of Figures

List of Tables

D:\EREN\SURVEY\FINALRPT\1A-TOC.WPD

Executive Summary

The Energy Efficiency and Renewable Energy Network (EREN) Customer Satisfaction Survey was developed and executed in support of EREN's continuous quality improvement (CQI) plan. The study was designed to provide information about the demographic make up of EREN users, the value or benefits they derive from EREN, the kinds and quality of services they want, their levels of satisfaction with existing services, their preferences in both the sources of service and the means of delivery, and to provide benchmark data for the establishment of continuous quality improvement measures. The survey was performed by soliciting voluntary participation from members of the EREN Users Group. It was executed in two phases; the first being conducted by phone using a randomly selected group; and the second being conducted electronically and which was open to all of the remaining members of the Users Group.

The survey indicates that EREN users are primarily individuals with technical or academic backgrounds, such as engineers and consultants, teachers and students. A significant percentage of the survey respondents (27%) were located in foreign countries. Many of users provide EREN information to others, some to hundreds or thousands of others, and many EREN users are willing to put a dollar figure on the savings derived from EREN use. A majority of respondents expressed interest in all energy efficiency sectors and all renewable technologies. The most common means of becoming aware of EREN was through an Internet keyword search. The most common reasons for using EREN are to keep current, for obtaining advice, to develop competencies, and to support ongoing projects. Users have a high degree of confidence in the accuracy and currency of EREN information, and 95% of all respondents indentified having derived benefit from using EREN.

The survey results showed a high degree of consistency between Phase I and Phase II, over almost all of the questions. The area showing the greatest variance was in trying to assess the dollar value of savings from EREN use, although both groups gave very positive information here. A number of possible explanations are put forward for the differences, and future surveys will help clarify these results.

Energy Efficiency and Renewable Energy Network (EREN) Customer Satisfaction Survey

Project Overview

1. INTRODUCTION

1.1 Background

The Energy Efficiency and Renewable Energy Network (EREN) serves as a gateway to electronic information resources on the Internet. Operated by the Department of Energy's (DOE) Office of Energy Efficiency and Renewable Energy (EE), EREN was designed to support the scientific and technical mission of DOE and to link government agencies, colleges and universities, commercial companies, and individuals to energy efficiency and renewable energy information sources throughout the world.

To understand the vital role that EREN has in providing access to information, it is important to understand the changes in information resources themselves. In the past, government agencies have provided much of the access to public information in print form. With advances in technology, electronic resources, particularly through the Internet, have become increasingly important as a method of communication and as a source for information. There is a wealth of energy efficiency and renewable energy information in electronic format; however, the sheer volume of information available on the Internet makes it difficult to find all of the information on any particular topic. EREN is responding to the problems associated with locating information on the Internet by organizing available information and grouping related resources that allows users access to the information they need in an organized and logical manner. As an online information service, EREN promotes access through searching by broad subject divisions, type of resource, type of organization, by an alphabetical listing of sites, and by a keyword search system. EREN also serves as a multi-media network with links to maps, images, video, sound, and text.

1.2 Objectives

EREN was originally conceived as a way to serve State Energy Offices (SEOs) and DOE site offices by assisting them in providing information resources more effectively to their internal and external customers. Because of its public availability over the Internet, however, it has become increasingly clear that it is also a valuable service for other groups such as energy developers, manufacturers, builders, consumers, and students. DOE realized that, if EREN is to be effective, it is important to understand who its customers are and to ensure that those customers are satisfied with the efforts that EREN is making.

This study was designed, therefore, to provide feedback about EREN. To provide that information, the following objectives were developed.

① Identify and define actual EREN users.

Because part of the DOE mission is to make practical advances in research applicable to individual consumers, EREN's developers wanted to know more about EREN's actual users—who they are and how they use EREN. Limited information on EREN's users has been available in general terms. Information by domain name, (e.g., ".com" = commercial, ".edu" = academic, or ".gov" = government) and by geographic location (e.g., "*.edu.fr" = France or "*.edu.co" = Colombia), was captured through the EREN server, along with information on the total number of users. One of the objectives of this study was to identify the individuals who are accessing the system, thereby defining EREN's customers.

② Determine the value or benefits derived from the use of EREN.

③ Determine the kind and quality of services that users want.

The determination of the kind and quality of resources and services that customers want, the examination of their level of satisfaction with existing services, and the measurement of the economic impact of the Energy Efficiency and Renewable Energy Network are important to EREN's continuation as an important energy resource. EREN is primarily a *gateway* to information resources. It organizes Internet content for the user much like a traditional card catalog organized library books for the user. This grouping of related resources on the Internet assists users in locating appropriate information. Given the newness, and the changeability of the technology, questions of how well users are being served by the resources that they find and what impact these resources are having are important for improving future access through EREN. A clearer understanding of EREN usage will enable the EREN development team to incorporate this information into strategic and marketing plans that are scheduled for the next phase of development.

④ Determine the users' levels of satisfaction with existing services.

This study is an opportunity to evaluate the information products and services that EREN renders. Analysis of data collected during the Customer Satisfaction Survey is expected to identify aspects of the services that are most beneficial and could be enhanced, as well as those that could be improved. Important from an overall management point of view, this information will help to establish measures of performance for the continuous quality improvement of EREN.

⑤ Determine users' preferences in both the sources of service and the means of delivery.

⑥ Establish continuous quality improvement measures.

By determining the level of user satisfaction with EREN services, measures of performance can be established that will provide methods for continuous quality improvement of EREN to further ensure that EREN is meeting long-term goals and needs of customers.

According to quality criteria from both the President's Quality Award and the Malcolm Baldridge National Quality Award, information and analysis should be the foundation of quality and operational performance improvement. Not only must data be valid and reliable, but the right things must be measured. Decision-making must be data driven. Organizations must have systematic approaches and processes for determining customer requirements and expectations, purposefully managing relationships with customers, and determining levels of customer satisfaction.

1.3 Literature Review

Prior to beginning the study, it was important to ensure that the researchers understood the background vital to an understanding of how customer satisfaction is measured, as well as what metrics are best utilized in determining users requirements of information.

It is clear that online information retrieval offers vast quantities of information to a diverse and expanding group of users. Knowledge of how those users evaluate information and information services, however, remains speculative. Historically, information providers have had very little information about the individuals who use their services or how that information is valued.

The literature reviewed for this study covered several areas dealing with metrics; research on information seeking strategies; studies of the effectiveness of information centers and services; examination of the quality of information services; and methods of obtaining evaluative information. In addition, questionnaires for a variety of organizations and services were considered.

1.3.1 Review of Related Literature

Research making direct assessments of an activity have used quantitative measures in controlled experiments concerning information-seeking strategies. In these studies, specific information services or products have been investigated. For example, system indexing and retrieval have been measured using searches of public access catalogs in libraries (Bates, 1986; Dalrymple and Zweizig, 1992), as well as searches of electronic encyclopedias (Liebscher and Marchionini, 1988; Marchionini, 1989). These studies have been exploratory and were designed in an attempt to understand the searcher's behavior. This is usually studied in terms of the competence of the user as seen from the system's perspective.

Of concern to researchers was information on the processes and the results of human/computer interaction. Each study attempted to answer questions about this interaction in the hope that by increasing the knowledge base, this information could influence the design of more effective systems, enabling information users to make the best use of their time and energy in accessing information resources. The human information seeker is a complex of variables such as intelligence, experience, motivation, and other individual characteristics that affect information seeking performance. While the abilities of users have been studied (Kazluaskas, Pinder, Richardson, 1990; Fidel, 1991), the reasons that users access information systems have not been addressed.

Retrieval strategies in networked environments were investigated (Marchionini, Barlow, Hill, 1994) in a comparative study of searches performed through the use of a WAIS server and a Boolean-based retrieval system. WAIS searching requires high-speed connectivity to be effective and allows users to search a variety of servers without specialized training in query languages. The Marchionini, et al. study demonstrated both the possibilities and the challenges posed by new technologies.

Studies of the performance, or effectiveness, of information centers and services usage measures have centered around output (Kantor, 1984; VanHouse, 1989; Childers and VanHouse, 1994). These measures are employed in counting the number of patrons using particular services, or counts of people who physically enter a library. Fill rates, or the proportions of document requests that are filled and the speed with which the requests are filled, are also common output measures. Output quantities, while important to evaluation, do not answer questions of information relevance to the user nor do they indicate user satisfaction with the resources.

One reported experimental study (Gluck, 1995) explored the concept of performance in information systems by blending the concepts of information relevance and user competence. The study aimed to form a holistic view, leading to a more fully developed understanding of the performance of information systems.

Various methods for obtaining evaluative information have been employed, as documented in the literature (Shaughnessy, 1990; Griffiths and King, 1991). Each of the methods, including focus groups, suggestion forms, questionnaires and interviews, concentrates on users in a communication process. Many of the authors, whose works are reviewed here, cautioned that communication must be part of an ongoing process in order to provide effective management information. Relevance judgments made by users assess the quality of retrieved materials, item by item at a particular point in time and within a particular user context, and can be expected to change over time.

Much of what has been written about quality of information services has come from the Total Quality Management (TQM) literature. TQM has been defined as "a management philosophy that involves everyone in an organization in controlling and continuously improving how work is done in order to meet customer expectations of quality" (DOE/HR-0066). TQM provides guidelines for continuous improvement resulting in greater levels of customer satisfaction. Specific components of TQM include management support, effective communications, a focus on the customer, rewards and recognition, use of standards and measures, a commitment to training, a long-term commitment by all participants, and employee empowerment. Together, these components result in organizational excellence.

Quality is by nature a difficult concept to define because it is subjective. One report (Edwards and Brown, 1995) described a project designed to develop a user-based approach to measuring the quality of an information service. Results showed that there are definite differences in the emphasis that users and providers place on particular aspects of service.

There are several themes in the literature concerning the quality of information services. A focus on customer satisfaction leads the list. User studies have identified a variety of definitions for satisfaction. These include: convenience, timeliness of service, accuracy, quality of technology, and value of materials (Sandore, 1990). Satisfaction with information and information systems also

involves measures of the quality of the data (Basch, 1990), and the literature has provided specific guidance for quality measures for the information industry. Consistency, accuracy, timeliness, accessibility, and ease of use are all components of a quality information service.

In order to provide services to please customers, processes must be identified and defined. From this organization of work processes, results can be measured. Benchmarking is an activity whose purpose is to establish a baseline of performance against which periodic measurements can be made in order to determine improvement. To begin the benchmarking process, a set of tasks must first be identified as important to customer satisfaction. These tasks must then be stated in terms of quantifiable measures (i.e., metrics), that can be used to monitor continuous quality improvement. Continuous Quality Improvement (CQI) has been defined as "the unending betterment of a process based on constant measurement and analysis of results produced by the process and use of that analysis to modify the process" (DOE/HR-0066).

1.4 Review of Quality Metrics Methodologies

Metrics are numbers used to measure the effects of an organization's practices. They provide the tools to answer questions about the performance of the organization. Metrics further allow an organization to compare its practices with those of other organizations. They are also used to identify beneficial changes over time, measuring the effects of change itself and allowing the organization to understand the impact of change. The true effectiveness of metrics, however, lies in the assistance they provide for management's ability to plan, institute, and evaluate improvement.

There are three specific types of metrics: 1) process or efficiency metrics that assist organizations in measuring quantifiable goals (such as staff availability and how personnel recruitment goals are being met); 2) results or impact measures (these may have quantifiable components but are also subjective, such as staff responsiveness to customer needs); and 3) corporate culture or corporate approach metrics that are mostly subjective, but could be measured both by process and efficiencies metrics. The development of metrics for any organization, however, is dependent upon knowledge of the organization goals, the tasks it performs to accomplish those goals, and the organization's products and service units.

Each functional area within an information service can be broken down to the individual task level. From this level, it is easier to identify specific tasks that can be measured. For example, in a traditional library setting, the usage of a specific collection can be measured through circulation statistics. Libraries and information centers routinely count the number of times a specific book or journal is checked out, and many count the number of times it is reshelved, in an effort to determine how many people have had access to a specific item. This helps to identify areas of patron interest, and assists the librarian in making decisions about future materials to acquire for the collection. The same is true for an electronic information service. The number of times a specific topic is selected provides a quantifiable measure of customer interest. In the case of EREN, this metric could be defined as the number of times within a given period that a particular resource is accessed. Information technology makes the collection of this statistic automatic.

Quantitative data provides information that can be translated into specific numbers. Qualitative data, on the other hand, offers an explanation of information that is harder to quantify, but is equally helpful in determining the value of a service. Both quantitative and qualitative data are useful in measuring the quality of information services. In the example of measuring the usage of a specific book, quantitative information is best, but in determining the specific reasons that the book is selected, qualitative information is key. Interviews with users provide insights into their motivation for use. Moreover, qualitative metrics can also be translated into quantitative data. For example, the number of positive book reviews about a given title compared to the number of negative reviews would provide quantitative and qualitative information about the title. Both give useful information.

The value of information is becoming a topic of major significance as we move further into the Information Age. Determining methods for quantifying value where information is concerned is important because value can be measured in several different ways. Time saved through the availability and use of information can be measured, dollars saved as a consequence of information use can be measured, as can money saved in cost avoidance. It is assumed that the value of information resources available through EREN could also be determined through an analysis of the non-renewable energy that is reportedly saved, by computing this into additional dollar savings. Value can also be measured by virtue of having some other intrinsic worth; for example, educational or environmental.

There are specific characteristics that describe a high quality electronic information service. These characteristics can apply to the evaluation of databases, Internet resources, electronic documents, etc. Some specific characteristics to be measured on an ongoing basis in a continuous quality improvement strategy for information services were identified in the early 1990's. These characteristics include:

① coverage and scope
② timeliness
③ accuracy
④ accessibility/ease of use
⑤ output
⑥ documentation
⑦ value-to-cost ratio

The following sections of this report describe the instrument and method used to measure customer satisfaction with the Energy Efficiency and Renewable Energy Network.

2. METHODOLOGY

2.1 Technical Approach/Telephone Interviews

In order to provide DOE with the information necessary to meet the objectives established as critical to ensuring customer satisfaction with EREN, it was determined by the EREN development team that answers must come from the customers or users themselves. A Customer Satisfaction Survey was developed that would assess that information from a **user satisfaction** perspective. In addition to providing feedback to current success of EREN, the Customer Satisfaction Survey can become an important step in EREN's long-range TQM Program because it establishes measurements by which services are evaluated and it provides a vehicle for communication with EREN's users.

A telephone survey was chosen as the initial method for gathering data on customer's satisfaction with EREN. Respondents were selected in random order from a list of names of registered Users Group members. After reviewing the literature and researching other survey projects, it was determined that a higher success rate can by achieved by telephone than expecting return of questionnaires sent through the mail. By means of conversations with registered users of EREN, more could be learned about how users form opinions, and what criteria they use for judging satisfaction with information systems. It is possible to probe for more than terse answers in a personal conversation on the telephone that allows the researcher to expand the information about preferences and satisfaction levels than would be possible in a questionnaire.

The survey instrument containing binary and scaled questions was drafted so that a user could respond in about 15 minutes. It was designed to accommodate checklists, ranges of answers, and "yes/no" replies to make responses fairly easy. The specific set of questions used for the study were refined in preliminary testing of the instrument. In future studies, it is expected that the questionnaire will represent a "work in progress" that undergoes changes as understanding develops of the needs and motivations of EREN's users.

The survey questionnaire format approached the concept of user satisfaction from several aspects. For example, the level of user satisfaction may be ascertained to some extent by determining the number of times a respondent has used EREN, on the grounds that one would not repeatedly return to use an unsatisfactory service.

Questions in the survey instrument were also designed to elicit detailed information about users' experiences with EREN resources. Users were encouraged to make suggestions about other resources they would like to see added to EREN and to give additional comments about any aspect of the network that concerned them.

Questions were included that pertained to the accuracy and currency of EREN's information resources. Answers to those questions were also designed to measure satisfaction with the system, assuming that satisfaction follows from access to information resources that are accurate and provided in a timely manner.

Users reporting satisfaction with EREN's resources may experience various inconveniences. Indicators of this inconvenience can be considered measures of "accessibility," that is, the effort which a user must expend in accessing the desired material. One indicator of implicit value is the time the user spends in accessing the information, as quantified by the equation of time as it is equal to salary and overhead. Difficulty of access works against information provision by reducing the availability of materials to the user; however, the level of availability required also depends on the characteristics of each specific user.

While many organizations are trying to improve their services, few ask their customers' opinions of the resources and services offered. This study of EREN and its users documents the attempt to involve the users of a service in evaluating and improving it.

2.1.1 Survey Process

Once the survey instrument was designed, it was used in a pretest. Seven interviews were conducted with individuals who indicated interest in energy information and who had used EREN in their work. After the pretest, some typographical errors and omissions in the survey instrument were corrected. Some questions were omitted, others were modified slightly. The table of resources initially asked for a determination of the importance of a resource and a rating of the users' satisfaction. These values focused on resources used by the respondent. Another category, resources not yet used but considered by the respondent to be potentially important, was appended to the table.

The questionnaire was sent to DOE for approval. It was then submitted to the Office of Management and Budget (OMB). As soon as OMB approved the survey instrument, the questionnaire and data forms were printed for distribution. Please refer to Appendix A for a copy of the final questionnaire.

2.1.1.1 Procedures

A request for participation (please see Appendix B) was sent via electronic mail to randomly selected members of the EREN users group. When a positive reply was returned, information about the respondent was entered on an Interview Data Form (included in Appendix C). An E-mail message was sent to the respondent, thanking him/her for his willingness to participate and setting a tentative date for the interview. The questionnaire was either mailed or faxed to the respondent and that information was recorded on the Interview Data Form. Respondents were given the questionnaire in advance so they could follow the interviewer's questions more easily. They were not required to review the questionnaire in advance of the interview but some chose to do so.

One person conducted all of the interviews for this study. This was done to ensure consistency in the interviewing process. A great deal of information was carefully transcribed during the interview process, including information of an anecdotal nature that strengthened and provided background for the responses. Interviews were not, however, tape recorded and we are dependent on the memory and the speed with which the researcher could take notes.

Appointment times for the interviews were scheduled at the convenience of the respondents, who were considerate of the researcher's local time. Times were recorded on the Interview Data Sheets, listing both the local time for the researcher and for the respondent.

Appointment times for the interviews were scheduled at the convenience of the respondents, who were considerate of the researcher's local time. Times were recorded on the Interview Data Sheets, listing both the local time for the researcher and for the respondent.

The interviews were guided by the questionnaire design but were unstructured enough to allow for comments at any point. Responses were recorded by the researcher who filled in the questionnaire as the interview progressed and transcribed lengthy comments on separate pages. At the completion of each interview, the researcher reviewed the comments (which were, by necessity, abbreviated) and added clarification and additional information while the conversation was still fresh in memory.

When the 40 telephone interviews were completed and the results tabulated, a second survey was conducted electronically. The original questionnaire was reformatted using Hypertext Markup Language (HTML) and mounted on an Internet server, providing access to the questionnaire via the World Wide Web (WWW). In addition, the questionnaire was made available as an E-mail message.

2.1.1.2 Data Collection and Organization

All data from the completed questionnaires were entered into a FoxPro database. Comment fields were added to each appropriate field, and the final database contained 129 separate fields. After responses from the final telephone interview were entered, the data were compiled and sorted, providing bases for analysis. A listing of the database fields and a table with full descriptions of each field can be found in Appendix D.

Data from the electronic versions of the questionnaire were entered into the same FoxPro database, tabulated and analyzed separately from the telephone interview data, for comparison of data collection methods, as well as aggregated with the interview results, providing a larger body of responses for the study.

2.1.1.3 Sample Size and Response Rate

For the telephone interviews, each name from a list of approximately 700 members of the EREN users group was assigned a random number by using a standard random number generator. The numbers were then listed in order and electronic messages were sent to the first forty names on the list.

Immediate notices were returned from System Automailers informing the researchers that five of the messages were undeliverable, with faulty addresses or addresses that were no longer valid. In the following two days, messages were received from two members declining to participate and thirteen from members willing to participate. Seven more requests for participation were sent out five days after the first group.

In the following weeks, E-mail messages requesting participation were transmitted every five days. In all, 196 messages were sent out, 47 returned as undeliverable, 14 declined to participate, and 46 respondents agreed to participate in the telephone survey. Six of these participants dropped out of the study for various reasons. The time frame for the initial study, October 16 to December 31, included two major holiday periods as well as the ending of an academic semester. During the period

of time designated for the completion of the survey, the federal government twice experienced a shut down of services due to budget limitations. These events have had some impact on the response to the survey.

2.2 Technical Approach / Electronic Survey

The second phase of the survey was begun on January 9, 1996. A message was sent to all members of the EREN Users Group, inviting them to complete the questionnaire on the WWW using a forms capable browser, or by requesting an E-mail version of the questionnaire. The Universal Resource Locator (URL) for the WWW version of the survey instrument (http://www.infointl.com/eren.html) was included in the message, as was the E-mail address of the researcher.

The electronic version of the EREN survey was implemented as an HTML form, accessible via the World Wide Web using standard Web browsers. Normally, it is necessary to implement such forms in such a way that the encoded results are returned to a directory on the same server where the HTML form files exist. These responses are then processed by a program which decodes them from the server and generates a forms response database. However, the HTML standards also provide for an option of sending the encoded responses directly to an electronic mail address on a mail server implementing the POP3 Post Office Protocol. A program has recently been released which incorporates both HTML forms development and automated decoding and processing of the responses directly from an E-mail account utilizing the above option. This is potentially a very convenient alternative since both parts of the operation can be conducted directly from a client workstation so that no server-based programming is required. Because the forms function is implemented differently within different WWW browsers, electronic HTML form processing is never straight-forward and requires a certain amount of manual intervention in any case. Using a new program implementing the E-mail option added another set of variables to this process for the EREN survey. Nevertheless, despite some problems, this approach was used successfully.

Three weeks after the first invitation to participate was posted, a reminder message went out to the Users Group members informing them that the study would be ending soon. On February 9, 1996, the WWW questionnaire form was removed from the server.

In all, 57 forms were collected. Forty-six Web forms and 11 E-mailed questionnaires were exported to files. Twenty-three E-mail versions of the questionnaire were sent out. Sixteen were sent in response to E-mailed requests, and seven were sent because of problems incurred with the Web version (problematic files were those with a name but no responses, or those with garbled responses). Of the seven E-mailed questionnaires sent because of problems with the Web form, six were returned completed.

2.2.1 Software Used

The forms package used for this survey is called WebForms and is a product of Q&D Software. This is an integrated MS Windows-based program combining forms generation and response processing. The first phase of a forms project involves building the form structure using tools which incorporate normal forms elements including check boxes, list boxes, radio buttons, comment boxes, text fields, and free format comment fields. Once the structure has been defined using these elements, a form

definition database is automatically created defining the relationships of all of the form elements and complete HTML form files are generated. A limited amount of direct editing of the HTML files is possible, but must be done carefully since the response processing program is dependent on the integrity of the relationships defined in the form description database. For the EREN survey, the resulting HTML form files were loaded into an existing server directory so the form could be directly was accessed by anyone from the Internet, provided they knew the URL (Internet address) for the form.

Once the forms responses were received in the E-mail account designated during the forms definition phase, they were checked for structural errors using the Eudora electronic mail package (available from QUALCOMM, Inc.) and simple errors were corrected using a text editor. The encoded responses were then saved to a directory as ASCII files. The second part of WebForms was then invoked to decode the responses on the basis of the forms definition database to create a Microsoft Access compatible database of the individual responses. Because the previous survey responses had been handled through a FoxPro database, the Access database containing the responses to the electronic survey was converted to FoxPro for further analysis.

2.2.2 Issues and Problems Encountered

There are differences in the way common features are implemented in different WWW browsers and there was a wide variation in the versions of browsers used by the EREN survey respondents around the world. Forms capability is not implemented uniformly, and not implemented at all in some of the browsers used by the respondents. In addition, some browsers appeared to handle the forms but introduced errors which resulted in the responses being truncated. The E-mail version was sent to respondents whose messages were misread. For some responses, the response file was complete, but extraneous characters were introduced into the records either by the browser software or by the electronic mail systems through which they passed. Fortunately, these were quite systematic and relatively easy to correct before the response files were processed. Many of the responses were transmitted with no errors and processed routinely.

From a technical standpoint, the approach used for the EREN survey worked successfully. However, it appears that the current state-of-the-art in implementation of forms capability in WWW browsers and in the transmission of HTML forms responses through electronic mail is imperfect. More manual intervention than expected was required. Also, the WebForms software that was used lacked some flexibility and features which might have simplified the project. All of this is simply an observation that the technology and tools used are not yet mature enough to work flawlessly with as large and complex a form as that required for the EREN survey. However, the general approach offers considerable promise and certainly should be considered as a viable alternative for such electronic surveys in the future.

3. SCOPE AND LIMITATIONS OF THE STUDY

The sample population consisted of all of the members of the EREN users group. These are people who have registered their names on the system and who regularly receive information about new resources available through EREN. Individuals register by providing their names and their electronic mail addresses through a form linked to EREN. A copy of the registration form is provided in Appendix E. It should be noted that many others use the service but do not register as members. Because of this fact, the responses from a sample size of 97 (40 for the telephone survey, 57 from the electronic survey) cannot be assured to be representative of the population of EREN's users. The study results can be used as a guide for further analysis and management planning.

Participants in the initial telephone survey were selected in random order, but they, as well as the respondents in the second phase of the survey must also be considered to be "self selected" by joining the users group and by choosing to respond to the request for participation in the survey. In addition, results are based on self-reporting with no confirming data. Furthermore, circumstances in the federal government caused a possible bias to creep into the study. During the time that the telephone survey was being conducted, government employees were twice furloughed because of budget limitations. This resulted in a number of scheduled interviews being postponed or canceled altogether. The first government "shut down" occurred at a time early enough in the study so that rescheduling was possible; however, the second "shut down" took place in the final weeks of the survey, making it impossible to interview several of the identified participants. Therefore, the percentage of government employees included in the survey is not as high as anticipated, and nongovernment-affiliated respondents are represented at a higher percentage of the sample than expected.

4. DESCRIPTION OF SURVEY INSTRUMENT

The survey instrument was divided into the following sections:

- **Demographics**
  - Affiliation
  - Occupation
  - Areas of interest
  - Start of the use of EREN

- **Ease of Use/Barriers to Use**
  - Aspects of the service
  - Portable document format
  - WWW browser use

- **Usage Patterns**
  - Number of times accessed in the past 30 days
  - Purposes for searching
  - Most recent use
  - Length of time searching
  - Information value
    - provision of new information
    - substantiation of prior information
    - activities initiated
    - alternatives
    - time saved by using EREN

- **General Use**
  - Accuracy
  - Currency
  - Benefits
  - Savings from benefits
  - Non-renewable energy use reduced
  - Shared information

- **Importance of and Satisfaction with Resources**
  - Bibliographic information
  - Bulletin boards
  - Codes and regulations
  - Data files
  - Directories
  - Discussion groups
  - Educational resources
  - FTP servers
  - Full-text publications

Gopher servers
International sites
Newsletters and magazines
Press releases and briefs
Products and services
Programs and projects
Searchable databases
Software

- **Added Information**

- **Comments**

5. FINDINGS

The following sections provide the results from the survey following the pattern of the questionnaire. Some discussion and analysis of the data is presented. Results from the telephone interviews and from the electronic forms will be detailed in the report, along with the aggregated results.

5.1 Section 1. Demographics

The answers to Questions 1 through 5 were included in an effort to identify EREN's users by affiliation, occupation, interest, manner and time of discovering EREN. Additional information, the country or state of the respondent, was available from the analysis of the telephone numbers given by each respondent. The specific numbers will not be made available in this report because of confidentiality requirements. In summary, 97 participants responded. Thirty people from the United States and 10 from foreign countries responded in the first phase of the survey, through telephone interviews. 57 responses came in the second phase. Forty were electronically transmitted from the U.S. and 17 from foreign countries. The following list of countries with respondent numbers is not equal to the total number of respondents because Country or State/Province information was not always provided in the electronic responses. In all, the following states and countries were recorded:

United States of America

- 2 Arizona
- 7 California
- 2 Colorado
- 1 Connecticut
- 2 District of Columbia
- 2 Georgia
- 2 Hawaii
- 1 Idaho
- 3 Illinois
- 1 Indiana
- 1 Iowa
- 1 Maryland
- 5 Massachusetts
- 2 Michigan
- 2 Minnesota
- 1 Missouri
- 1 Nebraska
- 1 Nevada
- 2 New Jersey
- 1 New Mexico
- 4 New York
- 3 Ohio
- 2 Oregon
- 3 Pennsylvania
- 1 Tennessee
- 5 Texas
- 2 Vermont
- 2 Virginia
- 3 Washington
- 3 Wisconsin

Other Countries

- 3 Australia
- 1 Brazil
- 8 Canada
- 1 Denmark
- 2 Germany
- 1 Iceland
- 1 Indonesia
- 1 Japan
- 2 New Zealand
- 2 South Africa
- 5 United Kingdom:
  - 2 England
  - 1 Ireland
  - 1 Scotland
  - 1 Wales

5.1.1 (1.) Which one of these groups best describes your affiliation?

The responses to Question 1 reflect the diversity of EREN's customer base. As was noted in Section 3, Scope and Limitations of the Study, Federal Government users are probably under-represented due to their unavailability during the two furlough periods.

Table 1-1. Affiliations of Respondents, Number and Percentage of Each Type

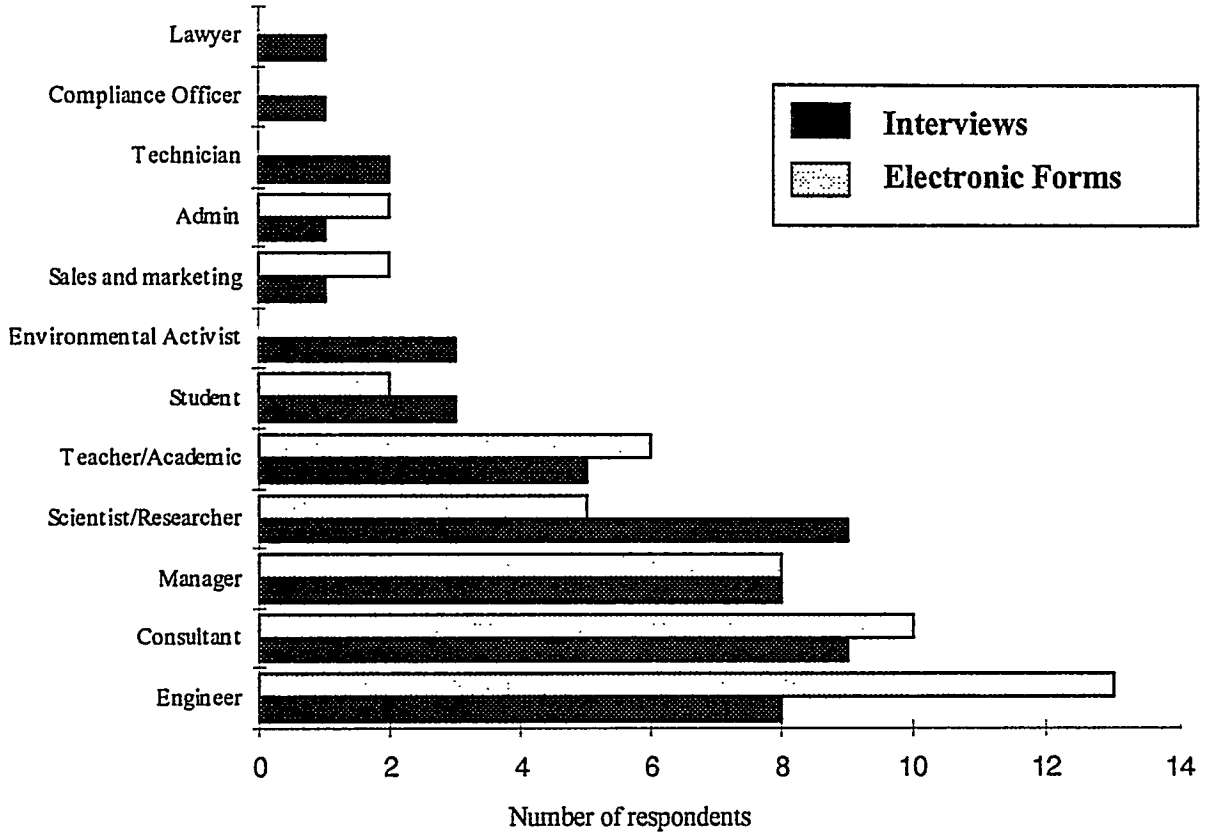
AFFILIATION	N=40 PHONE	%	N=57 ELECTRONIC	%	N=97 ALL	%
Academia	8	20	12	21	20	20
Commercial	7	17	18	31	25	25
State/Local Gov. (other than utilities)	5	12	4	7	9	9
Consumer/Private Citizen	4	10	10	17	14	14
Federal Government	3	7	3	5	6	6
State/Local Government Utility	3	7	3	5	6	6
Commercial Utility	3	7	2	3	5	5
Other —						
Nonprofit organizations 3	7	17	5	8	12	12
Government Contractor 2						
Research Company 1						
Environmental Organization 1						
Conference Board 1						
Health care 1						
Entrepreneur 1						
Consulting Engineer 1						
Project Developer 1						

Commercial affiliations represent 25% of the participants in this study of EREN's users. Taking into consideration affiliation with Federal, State and Local government, these groups together account for 21% of users. Affiliation with Academia accounts for another 20%. Consumers / Private citizens make up 14% of users. Commercial Utilities (5%) and other (12%) miscellaneous affiliations were reported by 17% of the participants.

Respondents wondered about EREN's target group. One felt that EREN has potential for two types of groups: those who don't use Energy Efficiency and Renewable Energy, but want to know about it; and Technical people who need more 'in-depth' information. One user hoped that EREN was not just a way for DOE to talk to DOE friends, but a way to share information and benefits with all citizens - that this is what we have government for, and EREN is a good way to spend tax money.

5.1.2 (2.) What is your occupation? (*Multiple answers possible*)

Figure 2-1. Occupations of Respondents: Comparison of Responses from Telephone Interviews and Electronic Forms.

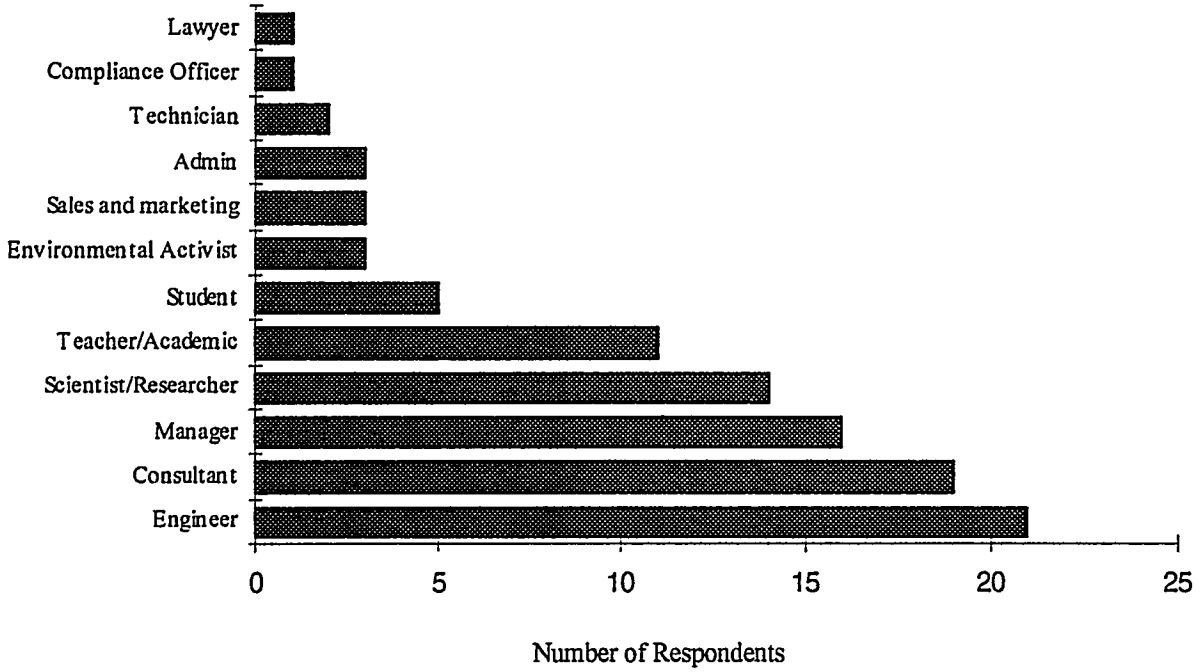


A number of occupations were chosen during interviews that were not represented on electronic forms : Lawyer, Compliance Officer, Technician and Environmental Activist. This may be the result of including multiple occupation identification in responses from the telephone survey and E-mail Those responding via the Web form were confined to answering by choosing only one occupation. Note that a greater number of Engineers responded to the questionnaire on electronic forms than in interviews. The largest groups of users reporting an occupation are listed here and all occupations are shown with their totals in Figure 2-2.

- Engineers (21)
- Consultants (19)
- Managers (16)
- Scientists / Researchers (14)

Combining students (5) and teachers (11) shows high participation for the academic sector.

Figure 2-2. Occupations of Respondents: Totals.



As was the case with affiliations, the variety of occupational types using EREN is noteworthy. Despite the inconsistency of allowing multiple choices in Interview and on E-mail forms while only a single answer was accepted on the Web forms, the total responses are indicative of the diversity of EREN's users, as well as the uses for EREN.

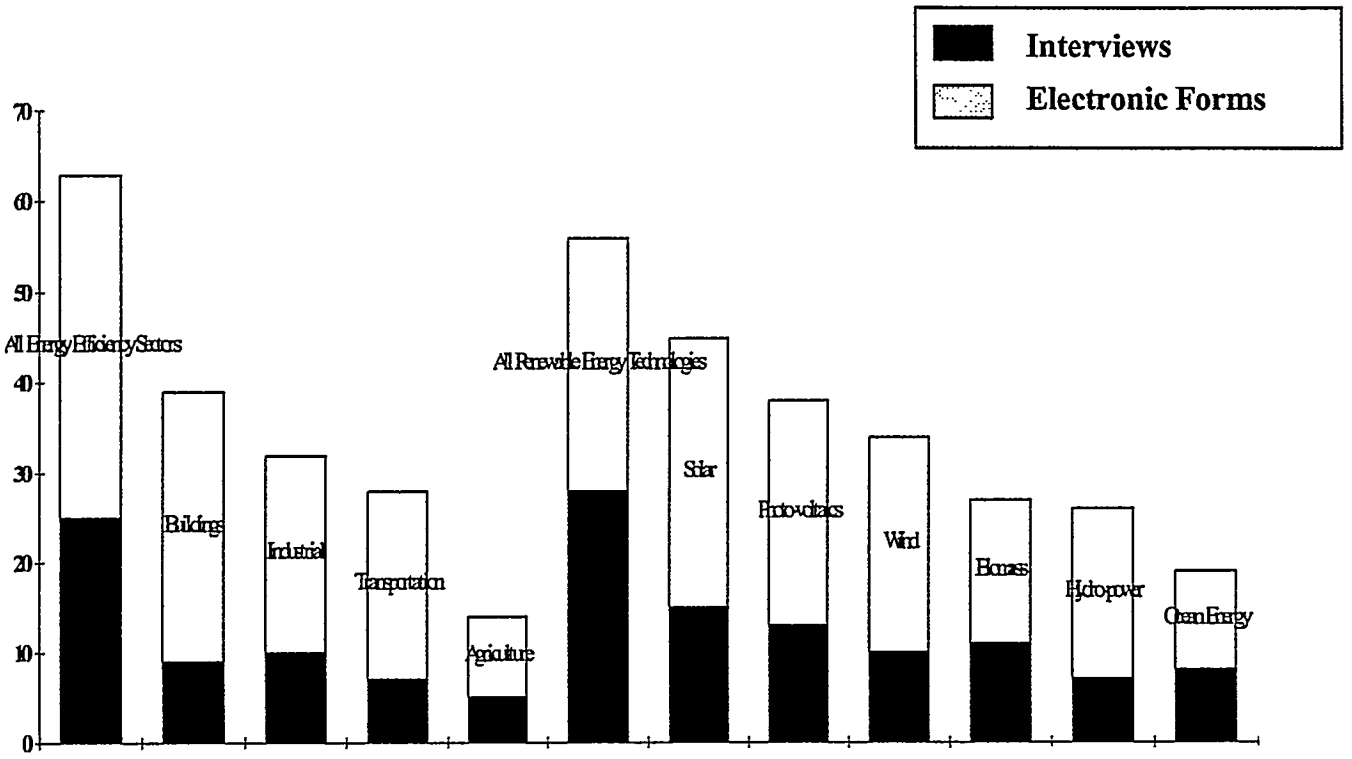
Respondents also listed occupations not provided in the questionnaire. These "other" occupations included Energy Analyst, Facilities Maintenance Planner, Technical Writer, Corporate Communications and Business Owner, Economist, Journalist, Equipment Lease and Financial Services, Distributor of Alternate Energy Products, and Physician.

Many suggestions indicated the interest or bias of the respondents. It was suggested, "Make it [EREN] more comprehensive, so that a technical person can get information at their desk, to write 'op ed' pieces, or fact sheets." However, one user's complaint was that "The information on electric motors and district heating is for facility managers, dealing with large physical plants - and that's fine, but there's not enough information for 'Joe Citizen' to educate himself on energy saving tips, like, how to cook more efficiently, or using compact florescent lighting, changing hard to fit lighting, and retrofitting outside lighting." The suggestion was made to "Make it for the average consumer, and why he should be doing energy efficient things. By reaching the average consumer, they'll understand that this is why we need this service. This is why we need DOE, and why it's important to keep the funding." One user pointed out that it would be good for DOE to cater to the average citizen, and make him feel that he can contact any department to find out what he needs. That would be good Public Relations. "If people see that they're getting something they need, and can see the results, that would make a difference."

5.1.3 (3.) What is your area of interest? (*Please mark all that apply.*)

As shown in Figure 3-1 and Table 3-1, the number of users that checked not only individual sectors and technologies, but also "All Energy Efficiency Sectors" and "All Renewable Technologies,"was high, indicating that users of EREN are interested in energy generally, as well as interested in specific technologies and sectors.

Figure 3-1. Areas of Interest, Aggregated: Interviews, Electronic Forms.



For the 40 users interviewed over the telephone, 148 categories of interests were checked, including 53 for both of the "All" sectors and technologies. Analysis of the 57 responses from the electronic forms revealed that 166 categories were checked, with 66 for all sectors and technologies, including 38 for the "All Energy Efficiency Sectors" and 28 for "All Renewable Energy Technologies."

In looking at sectors, "All" was predominant, followed by a split among the individual sectors. The following Figure 3-2., shows this, based on the percentage of responses for sectors. Agriculture had the fewest interested users.

Table 3-1. Areas of Interest and Percentages of Respondents by Technology and Sector.

	N=40 PHONE	N=57 ELECTRONIC	N=97 TOTAL	TOTAL % FOR SECTOR	TOTAL % FOR TECHNOLOGY
All Energy Efficiency Sectors	**25**	**38**	**63**	**36%**	
Agriculture	5	9	14	**8%**	
Buildings	9	30	39	**22%**	
Industrial	10	22	32	**18%**	
Transportation	7	21	28	**16%**	
All Renewable Energy Technologies	**28**	**28**	**56**		**22%**
Biomass	11	16	27		**11%**
Hydropower	7	19	26		**11%**
Ocean Energy	8	11	19		**8%**
Photovoltaics	13	25	38		**16%**
Solar	15	30	45		**18%**
Wind	10	24	34		**14%**

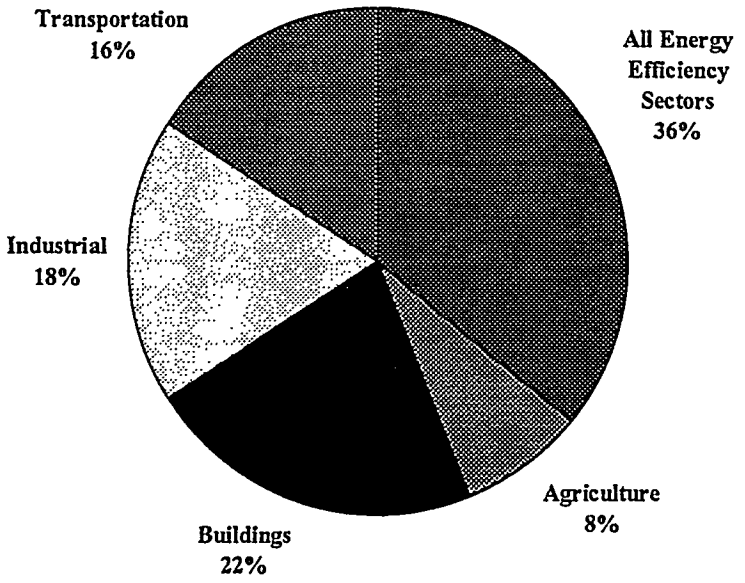
Users are interested in seeing energy efficiency in industry, and look for more concrete information, ways to save energy, experiences with the technology. They would like to see information about cost savings for commercial technology. There is an interest in the economic developers of industry - water, waste, the cost savings things affecting the bottom line.

In one respondent's role as consultant, he works at creating sustainable private sector markets for housing performance services. Energy efficiency, by itself doesn't cover it all - health, safety, comfort, durability, all play a part, to understand where the market is going. One user felt that it was most important to supplement technical information with more introductory level information, saying that this would produce more benefits to EREN users, as well as to systems and technology vendors. If the consumer learns about it on EREN, they may decide, for example, to buy a new water heater, because it's an energy efficient proposal.

One user was interested in seeing "commercially successful technologies", but when she got to the link provided, nothing was there...only a tag: "under construction." That was a disappointment.

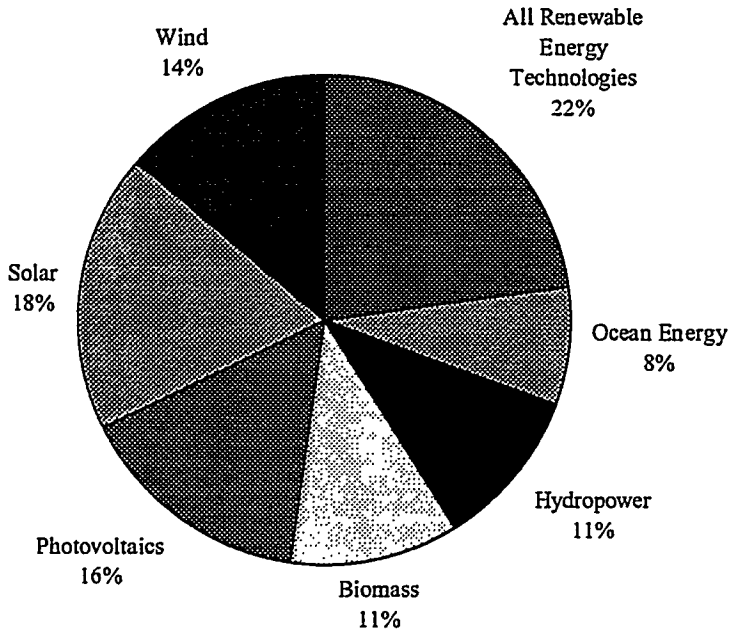
The recommendation was made to include further information on energy efficiency measures in all sectors, and more detailed information on renewables technology advances.

Figure 3-2. Percentage of Respondents Interested in Noted Sectors



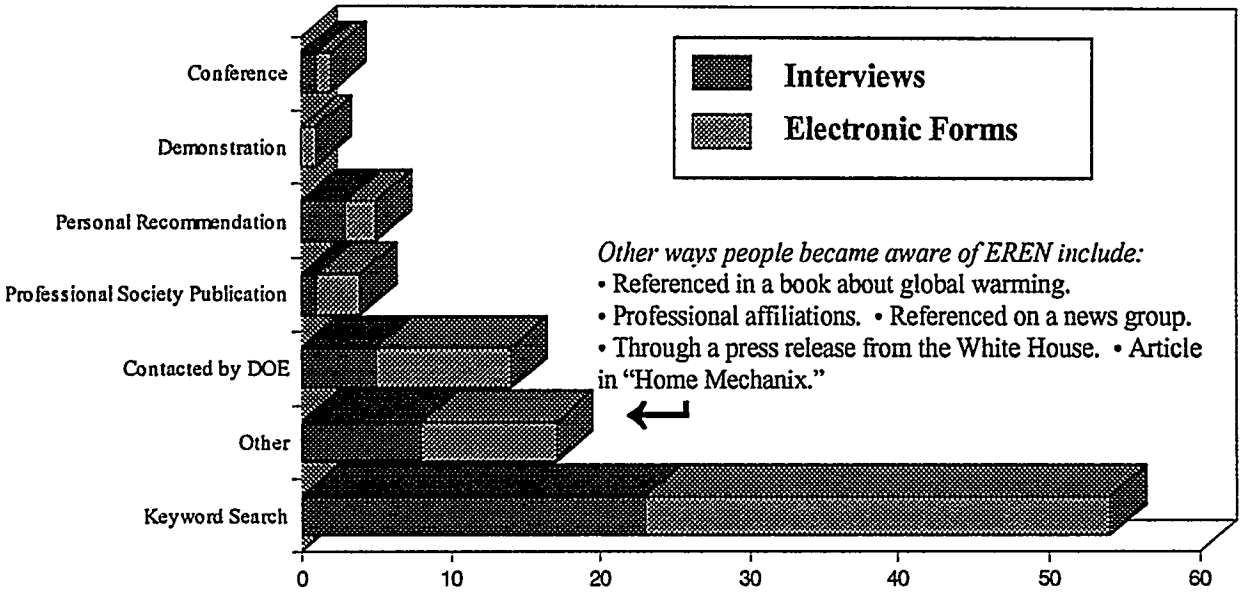
In looking at technologies, again, "All" was the predominant answer. There was also a split among the individual technologies, as shown in Figure 3-3.

Figure 3-3. Percentage of Respondents Interested in Noted Technology Areas



5.1.4 (4.) How did you become aware of the Energy Efficiency and Renewable Energy Network?

Figure 4-1. Avenues of Introduction to EREN



It is clear from Figure 4-1 that the predominant means of becoming aware of EREN is via the process of Internet exploration: doing keyword searches using one of the search engines, or through the less direct process of discovery via "surfing," that is, logically linking from one topic to a related one of interest.

Methods of introduction more actively impacted by EREN management—that is, direct contact, conferences, demonstrations—account for the introductions of 20 out of 96 users.

One user recommended cross referencing DOE's list through other list servers and news groups in order to market the EREN service.

5.1.5 (5.) When did you first start using EREN?

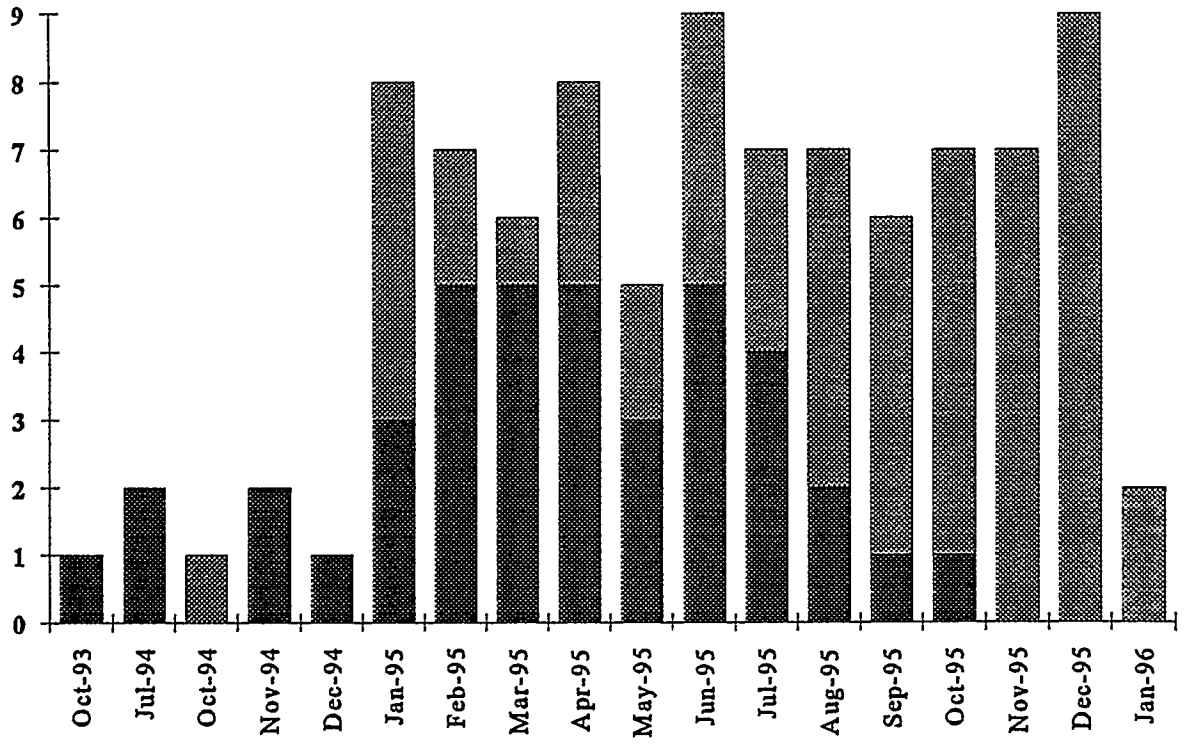
As indicated in Figure 5-1, telephone interviews revealed that the respondent reporting the longest use of EREN became an EREN user in October 1993. During the first half of 1995, the largest number of respondents reported the start of their use. Overall, the greatest number began their use of EREN within the last year, with the months of June and December of 1995 recording the highest numbers.

Figure 5-1 reflects differences between the responses from the telephone interviews and the electronic forms, in that all of the telephone survey respondents were identified by November of 1995, while those who responded to the electronic forms did so in January of 1996. Some respondents were new to EREN, and they qualified their answers to some of the questions by saying that because they were new to the system, they had not yet had time to explore it fully.

For those who participated in the telephone interviews, the average length of experience with EREN was 8.8 months. For the 55 people who responded to this question on the electronic forms, the average length of experience was 6 months.

The average length of experience for all survey participants was 7.4 months

Figure 5-1. Dates Respondents Became EREN Users

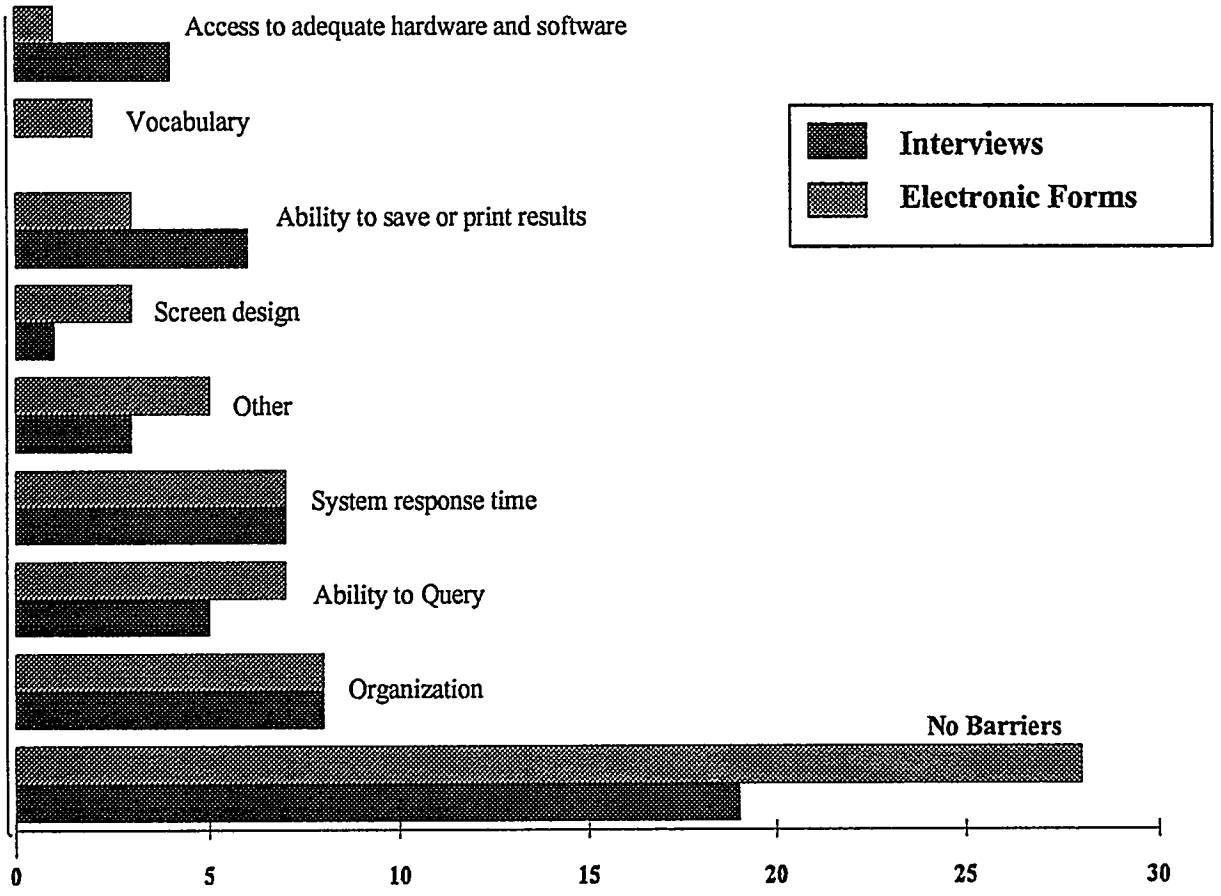


5.2 Section 2. Ease of Use / Barriers to Use

If anything gets in the way of participation and involvement with EREN, it would be noted in Question 6, which asks if any particular aspect of the service makes it difficult to use. Questions 7 through 9 concern the Portable Document Format (PDF). These questions will also help to determine if there is any impediment to the use of the network.

5.2.1 (6.) Does any particular aspect of the service make it difficult to use? (*Check all that apply.*)

Figure 6-1. Barriers to the Use of EREN



As shown in Figure 6-1, almost half (19) of the 40 respondents in the telephone interviews indicated that there were no particular barriers to using the service. Figure 6-1 also shows responses from the 45 people who answered this question on the electronic forms. More than half (28) indicated that there were no barriers that would make the service difficult to use.

For those who encountered barriers, 'organization of material', 'system response time', and 'ability to query' were the most cited. The fact that the organization of material received the highest number of barrier responses (8 out of 40, or 20% of the telephone interview respondents; 8 out of 48, or 17% on electronic forms) should flag the need for strategic attention to this aspect of the system.

The observation was made that it is time-consuming to figure out what office, program, or end use sector to search in order to locate information. One user remarked that although EREN is a great source for information, he is overwhelmed by all of the information available, and that he doesn't have time to follow all the leads. The problem of not having enough time was mentioned by several users. One suggested that since she never has time to follow up with the new information , as reported in the Users Group updates, it would help to put the references to new sites on the home page, so you can click on it to go right to them. One respondent noted that a good way to see new postings quickly and easily was through the "What's New" section; he was sorry to see it eliminated. This comment was evidently made while the EREN homepage was undergoing revision. The revised page does include "What's New." One respondent, who reported that organization was a barrier, felt that EREN had lots of information in the "What's New" section that hadn't made it to the other categories yet. (EREN Resource Pages are located in Appendix F for easy reference.)

Difficulty with vocabulary was reported as problematic for only two of the respondents. This may be misleading, however. To one user, 'vocabulary' may mean the words chosen to express concepts, and to another, 'vocabulary' may have bearing on the indexing of the concepts. Difficulty with indexing may be perceived as a problem with the organization of the material, or an inability to query. One respondent commented that "If you want to be a good site, you have to look at how a client searches. Was the information found quickly? Was it relevant? Programmers should look at it from non-computer persons viewpoint, and make it easier to deal with." Getting the information out to others may be difficult, but finding it is even more difficult. One respondent suggested that a basic glossary of energy terms and technologies would be helpful for use with schools, as well as being helpful to just increase the knowledge of the general user. Another suggestion was made that EREN should also be integrated with an online searchable, comprehensive encyclopedia.

One user reported that he gets some failed searches, so he thinks EREN needs more development, to make it easier to use. He suggested that EREN needs a better indexer, one that really does index all the energy efficiency and renewable energy sites. In doing keyword searches, it needs to be more user friendly. What words can you use? A thesaurus would help, and it would be helpful to have a searching tutorial that pops up when you're not having success with a search. One user had trouble figuring out links to Canada. Using the keyword search, he wasn't getting what he wanted. The keyword "Canada" gave only a few hits (44), but there was no way to know that number without scrolling through them all, and there was no indication of the quality of the hits. In Lycos or Webcrawler, this information is given.

For example, if the keywords are Canada and Lighting, the top hit will have a 'score' of 100, the next might be 85 or 60. These numbers give a clue about the quality of the hit. With the top hit in first place, you know that it would have lots of relevance, so you don't have to bother with bottom of the barrel. Twenty or thirty hits may have dubious quality, and it takes time to go through them all. In this particular search, one hit was Energy- California Society of Professional Engineers. In retrospect, the searcher found no reason to come up with it. The recommendation is to associate a quality number with the indexed term. Users want EREN to save time—and to get to the point.

Another user commented that EREN looks nice, works well, and provides a number of information resources, but, the very number of information resources is a problem, since there is a lot of information to work through. On respondent felt that technically, EREN needs work. He has trouble getting what he wants, even though it may be in there. Another user said that he has no patience to work with something if he can't figure it out in 10 minutes. He would like to click on an icon to get the information, rather than use command search language. He suggests another cut at indexing, by topic, with filter buttons. With EREN's "broad brush" approach, finding a particular subject is like "finding a needle in a haystack."

Energy Efficiency is extraordinarily broad, taking in every mechanical and architectural system, so it has to encompass many professions and subjects. EREN apparently wants to be a site for a huge subject, so naturally, some information will be missed. Energy is a big bite to take, and EREN is not catering to a narrow slice.

One respondent made the comment that most Gopher sites don't index anything on renewable energy, and that was surprising. He felt that there should be plenty of information, and search engines should be asking you to narrow the search. Although the user admitted that he doesn't understand how to use EREN very well, he doesn't have the time to learn how to use each site, if each site is different. It was also mentioned that some searches do not permit an easy request for further information, such as requests for abstracts, reports, or conference proceedings.

System response time, cited as a problem for 14 % of the participants, is really a question involving the Internet system, but the place where the user and EREN connect can have strong consequences on the quality of the service. Traffic on the Internet increases the possibility of delay as well as the length of time of the delay.

In addition, graphics make Web sites large. The recommendation was made to use text as links, not graphics. If links are rendered as images, they take an extra long time to load -in an environment where waiting even a minute is a drag. Especially annoying is having to download a graphic just to see the name of the site. Some browsers feature the ability to click on a button to get graphics, so that it is not necessary to automatically download images, but EREN was commended for not making a graphical logo important. However, another respondent observed that EREN has a rather dull format, commenting that he's "spoiled by all the other cool stuff on the Web." Users asked for graphics to be used particularly for processes and technology, to show how things work. "Keep it simple," was the advice. One user suggested making large documents into several smaller parts, so that users wouldn't have to download great big files.

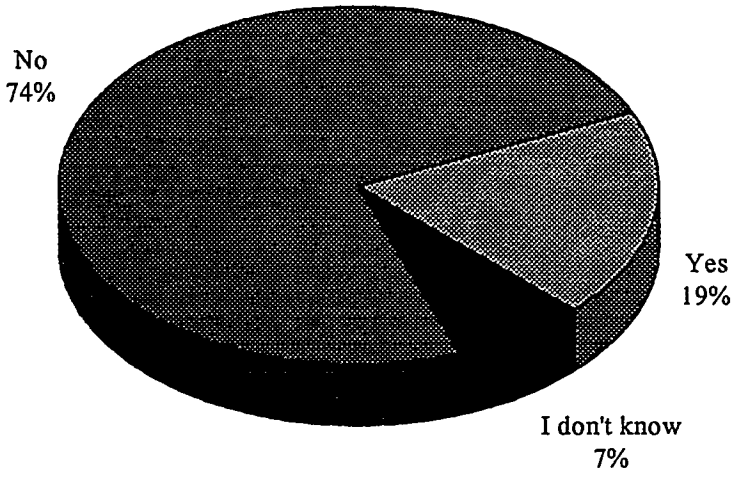
While it was observed that the information highway is full of potholes and traffic jams, EREN received more approval than disapproval. One respondent, whose use of EREN began early, remarked that he was pleased to see the definite progress EREN has made since the program started. He has seen it become more useful, and user friendly. Others commented that EREN is a reasonably easy source to use, and that they are glad to see it.

5.2.2 (7.) Have you used the PDF option on EREN?

Table 7-1. Use of PDF Option

ANSWER	INTERVIEWS N=40	%	ELECTRONIC FORMS N=56	%	TOTAL N=96	%
No	34	85%	37	66%	71	74%
Yes	6	15%	12	21%	18	19%
I don't know	0	0%	7	13%	7	7%

Figure 7-1. Use of Portable Document Format (PDF)



As indicated in Table 7-1 and shown in Figure 7-1, 74% of the respondents have not used the portable document format. Several participants commented that it was difficult to download the Adobe Acrobat software, used for viewing PDF files, and one advised that EREN developers should not race ahead of the technical capabilities of their customer base.

5.2.3 (8.) Would you like to see more documents in PDF posted on EREN?

Table 8-1.

Answer	Interviews N=40	%	Electronic Forms N=56	%	Total N=96	%
No	3	7.5%	4	7%	7	7%
Yes	16	40%	24	43%	40	42%
No opinion	21	52.5 %	28	50%	49	51%

Some users find the PDF option useful, and others think that it might be a good idea, but they are having trouble downloading and installing the Acrobat Reader. The suggestion was made to put a hot link on EREN to the Adobe Acrobat Reader. Some respondents would like to see documents in PDF, if it doesn't impose a negative factor in downloading and access time. PDF is used to facilitate document viewing, regardless of the platform used, so that, even though PDF may have shortcomings, it is still considered a workable alternative.

Several respondents commented that they only want the raw information and do not care how the document looks. The observation was made that PDF is "good for publicity-type things," but for RFPs, and other documents, a more flexible format, such as Word Perfect allows cutting and pasting from the document. Despite the misconception that PDF cannot be used in this manner, it is possible to select text, copy it to another file, and then cut and paste, using the Adobe Acrobat reader.

5.2.4 (9.) Are you using a character-based or graphical browser?

Table 9-1. Browser use.

Type of browser	Interviews N=40	Electronic Forms N=54	Total N= 94	Total %
Character-based	1	0	1	1%
Graphical	39	52	91	97%
I don't know	0	2	2	2%

As shown in Table 9-1, 97% of respondents accessed EREN using graphical browsers. One respondent had access to EREN through Lynx, a character-based browser. Only two of the respondents did not know what type of browser was in use. These figures describe the EREN user community as technologically capable of taking advantage of the Web's graphics. However, there still exists a need to accommodate users who do not have the technology available to use graphics. As one respondent commented, the information that he is looking for is textual, not graphical, so he sees no need for graphics. It was also observed that the use of graphics contributes to a slow response time.

During the telephone interviews, the names of the graphical browsers were also given in response to this question by 33 of the respondents. Netscape was named by 24, Mosaic by 7, Microsoft and OS2 each mentioned once. When planning the questionnaire for use on the Web, in the next phase of the study, attention was given to the named browsers in determining the likelihood of success with the Web version. In future studies, it may be helpful to include a question asking for the name of the browser in use, in order to provide more information about user's technical capabilities.

5.3 Section 3. Usage Patterns

Questions 10 and 12 measure the intensity of customer use.

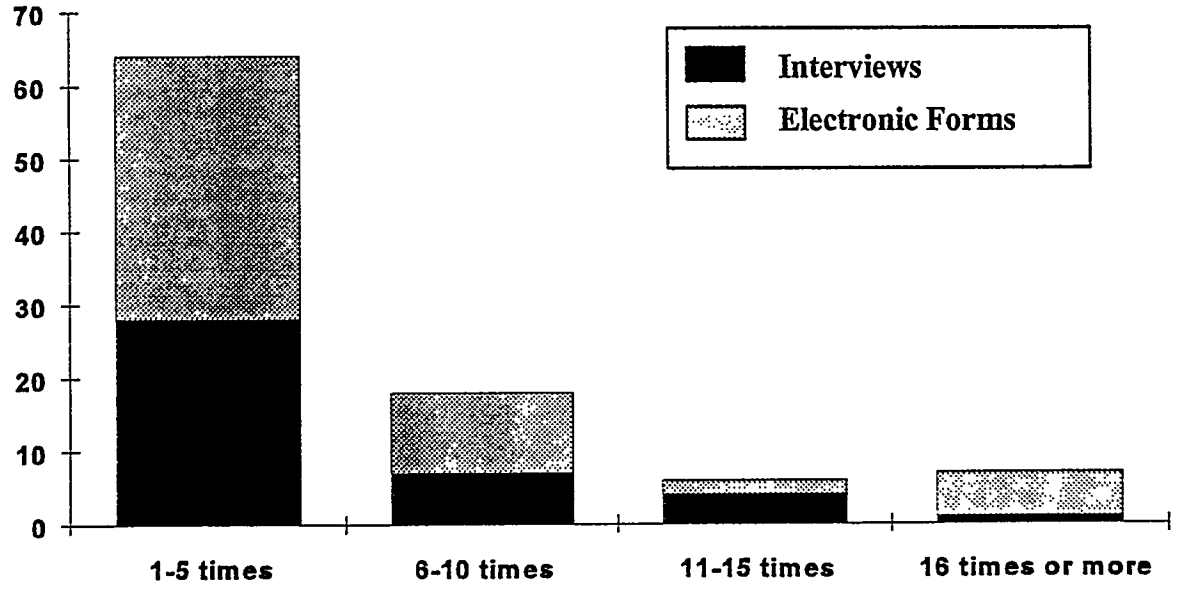
5.3.1 (10.) In the past 30 days, how often have you used EREN?

As shown in Table 10-1 and Figure 10-1, the majority of respondents use EREN once or twice a week. A few use it every other day. (These observations assume one use per day, for the sake of discussion, although multiple uses could occur on a single day.)

Table 10-1. Frequency of Use in Last 30 Days

RATE	INTERVIEWS N=40	%	ELECTRONIC FORMS N=55	%	TOTAL N=95	%
1 – 5 times	28	70%	36	65%	64	67%
6 – 10 times	7	17.5%	11	20%	18	19%
11 – 15 times	4	10%	2	4%	6	6%
16 times or more	1	2.5%	6	11%	7	7%

Figure 10-1. Number of Times EREN Was Used in the Last 30 Days.



5.3.2. (11.) For what purposes do you search using EREN? (*Please mark all that apply.*)

Table 11-1. Number of Responses of Specific Purposes for Using EREN.

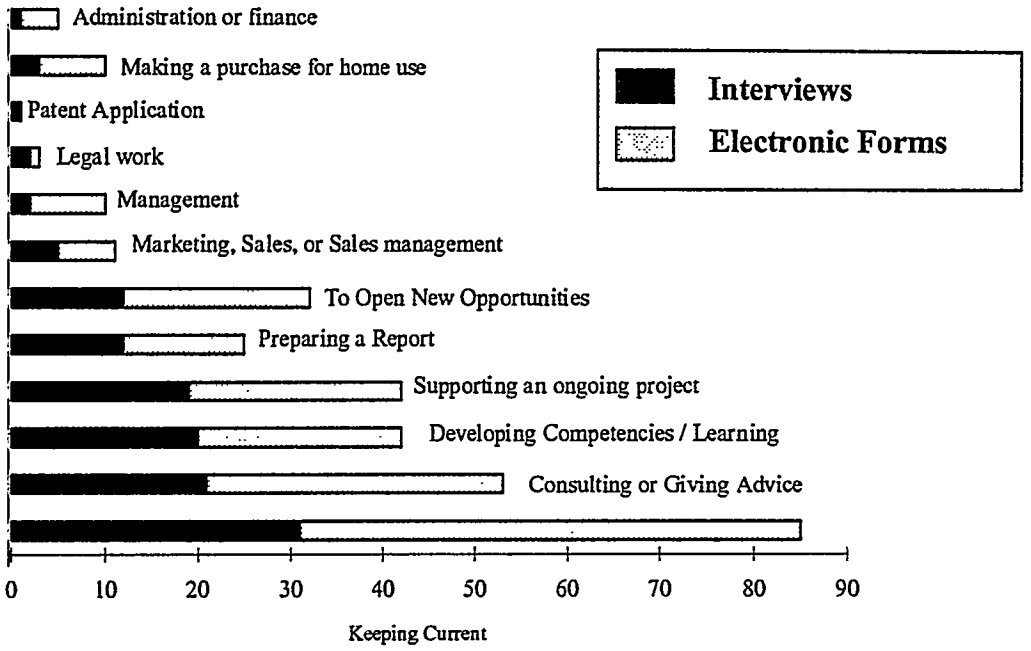
Purpose	Interviews 40	Electronic Forms 57	Total Responses 97
a) Keeping Current	31	54	85
b) Developing competencies/learning	20	22	42
c) supporting an ongoing project	19	23	42
d) preparing a report for a meeting or publication	12	13	25
e) patent application	1	0	1
f) to open new opportunities	12	20	32
g) making a purchase for home use	3	7	10
h) consulting, or giving advice to others	21	32	55
I) management or executive work	2	8	10
j) administration or finance	1	4	5
k) marketing, sales, or sales management	5	6	11
l) legal work	2	1	3
m) Other	6+	7*	13

+ Looking for links to company's homepage; Tracking DOE and National Lab activities; "Cut and Paste" for forwarding to field crews; Providing academic advice; Demonstrating the availability of information on Biomass; Too many uses to limit to those on this list.

* Lesson plans; Networking; Search for local resources; Links to sites; Find phone number or E-mail addresses of DOE and Nat. Lab. Employees; Creating links.

The following, Figure 11.1, shows clearly that keeping current is the purpose named most often for using EREN. Next is consulting, or giving advice. Users commented that EREN has definitely helped them, keeping them in touch with what's new, and increasing the ability to give better advice, in a timely manner. One user said that he uses EREN as he does a daily newspaper, looking for what's new today. Another uses EREN as one of a list of 25 sites on the Internet that he checks regularly for new information. A request was made for more current, breaking information to be included. It was pointed out that the "What's New" section is a good way to update and stay current, and that maintaining the "Old Entries" to the "What's New" listing is also helpful.

Figure 11-1. Purposes for Using EREN/Aggregated Responses



As shown in Table 11-1 and in Figure 11-1, there are a wide variety of uses for EREN. This further reinforces the findings of Questions 1 and 2, concerning the diversity of occupations and affiliations of those who use EREN. Eighty-six of the 97 respondents who answered this question (89%) use EREN to keep current in their fields. About half of the respondents use EREN for developing competencies, learning, consulting, and supporting ongoing projects.

The other purposes for using EREN cover a variety of applications and are reflective of the nature of the Internet environment. Purposes noted in the interviews were: linking to a company homepage; tracking DOE and National Lab activities; "cutting and pasting" information to forward to field crews; giving academic advice; and demonstrating the availability of information on Biomass. One respondent said that there are too many uses to limit to just those on the list. Responses on the electronic forms revealed that EREN's resources are used in preparing lesson plans for teaching; networking, learning the names of people who are key players in energy areas; linking and creating links to other sites; searching for local resources; seeking opportunities/cooperation in a test run of a turbine; and locating telephone or E-mail addresses of DOE and National Laboratory employees. Several commented that DOE telephone book and e-mail listings are extremely useful, and urged keeping them current. "It beats the out-dated paper mailing lists floating around the country!"

Developing competencies/learning is another important use of EREN. One user said that, "Having the PDF files available to me is like having an encyclopedia in the house. When I need information I either have it on my system or I know I can go to your web site and retrieve it."

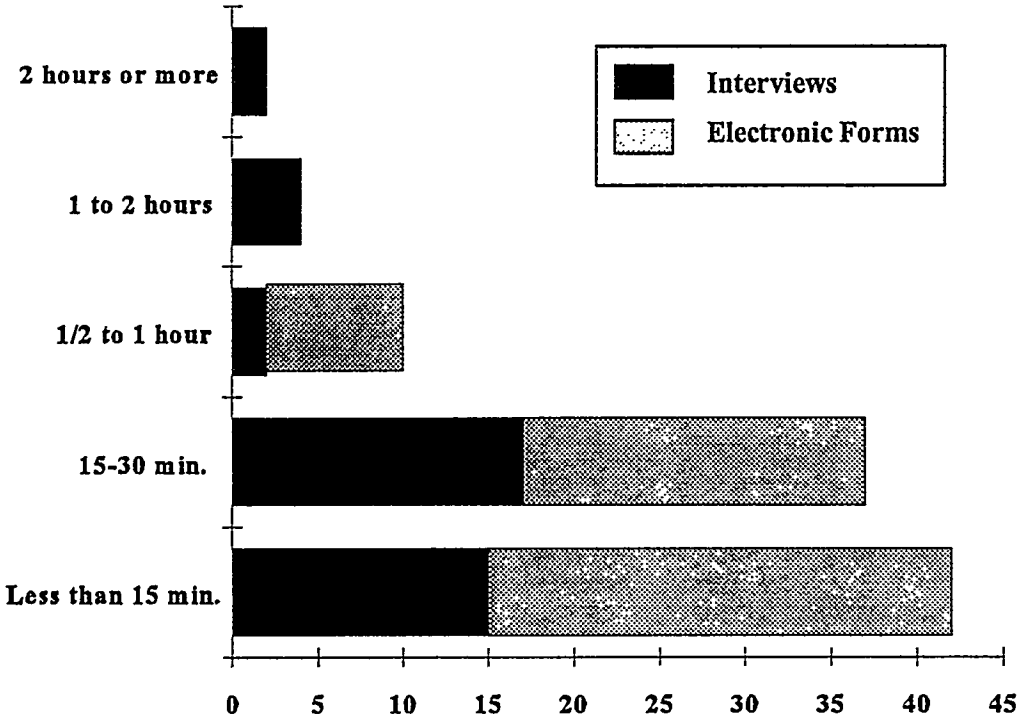
Critical Incident

Questions 12 through 18 use the critical incident technique. Respondents are asked to consider the last time they looked for information resources available through EREN, and to answer the questions with that search in mind. This helps to focus the respondent on a particular point in time so that specific details can be recalled.

5.3.3 (12.) Considering your most recent access, how long did you spend searching EREN?

Figure 12-1 shows amounts of time, and numbers of respondents, during their most recent access of EREN. The data show that 83% of the users accessed EREN for less than 30 minutes. The average length of time for all users was close to 30 minutes per use. This measure of time, taking the value of the user's time into consideration, is an indicator of the value of the service.

Figure 12-1. Amount of Time Spent on EREN



Number of Respondents reporting time spent = 95

5.3.4 (13.) Did you find out something, by using EREN, that you didn't know before? (agency brought to your attention? technology you were unfamiliar with?...)

Table 13-1. EREN as a Learning Tool

Answer	Interviews N=40	%	Electronic forms N=50	%	Total N=90	%
No	11	27.5	11	22	22	24
Yes	29	72.5	39	78	68	76

Almost three-quarters of the respondents indicated that they had learned something new from their last use of EREN. Twenty-nine of those interviewed responded that they learned:

Information on Climate Change Action Plan #10
U.S. is involved with methanol farm gas
New technology and additional information on window film
New technologies in renewable energy
Energy Performance Standards
New link to "Retro Vision", retrofit industry
Solar information
High energy efficiency motors
Micro hydroelectric energy, Turbine wheels are not on the Web
EREC has disaster recovery information
New advances in wind, solar, biomass
Solar building technologies, world wide energies
Electric vehicle information
Hybrid vehicle program link with academic partner
Technology for cleaning with CO^2
Mechanical engineering information
Learned about EREN in general
Biomass, fuels and transportation, access to agencies involved
Added information on Lighting and Buildings
Information about renewable energy in the "What's new" section
How photovoltaics work
Popularity of different energies
Learned about the existence and number of groups working on projects similar to hers
Releases of DOE programs
Case study concerning a utility installed PV system in New England
Information on control devices

Thirty-nine of those responding on electronic forms learned:

The names of other contacts, web sites and vendors
FEMP has a gopher server
New areas of PV usage.
IREC members
Heating energy calculations
Link to Power Smart in Canada
Government-sponsored programs
Mostly new web sites available.
Software tools for energy conservation projects.
Policies and codes established in the U.S.
Links to other renewable energy resources
A good paper on biomass
Some further information on energy efficiency
Information about research organizations and topics
New information sources, build up bookmarks.
General information on what's available
Current outlook of renewable energy for '96
That EIA information can be accessed through a web link
New technologies and ideas; links to other sites
New business opportunities
Newsletters that were available on energy efficiency
Discovered a program called Green Lights.
Information on electric vehicles
Electric vehicle home page
Geothermal heat pumps information
Agency involved with or responsible for a specific technology
It would be easier to describe what wasn't a new piece of information. The only reason I go on is to learn. Most of my inquiries are for the purpose of narrowing down my searches. My main field of interest is photovoltaics.
I was able to get a concise summary of recent developments in wind energy technology.
Not a specific search but rather a reading of newly posted items. I keep in touch this way and often look through previously available material after being attracted to something new. The E-mail updates are very helpful reminders to check in.
How to locate papers and read PDF files. There are many research papers which are of interest to me and I will return to review them on another occasion.
We joined NFRC and am trying to gather as much info as possible regarding energy efficiency in windows.
Located summaries of selected Rebuild America projects from 1995. Will use these as input in design of an application for 1996 funding.
I learned about new technologies that might be applicable to clients' needs.
I learned some important details about heat pumps; more specifically, about how they work and what climates they are best suited for.
Gathered information about the National Laboratories which led to e-mail and telephone contacts. We now have some excellent technology contacts and networks developing between our agency an the national laboratories. The links to other energy-related organizations are also

informative and helpful. A brief query through EREN and linking to these national sources save us tremendous amounts of staff research time. Information is easily found, retrieved and either downloaded or printed in a fraction of the time!

Again, the pattern of diversity that we have seen before in the users and uses of EREN is reflected in the variety of topics on which EREN provided new information to users. In general, this information related to the impact of new technologies and increasing awareness of ongoing programs.

For some of those who indicated they didn't benefit from their searches and were willing to provide clarification, the negative responses were:

- EREN has nothing on ocean/solar energy conversion, reinforcing what one user already knew (the government is not pursuing ocean/solar/thermal energy conversion). He recommended a link from EREN to a homepage concerning ocean energy.
- The hot list wasn't very interesting.
- The government puts up misleading, inaccurate information.
- Industrial Technology is not sufficiently supported.
- OIT's graphic bullets are not "hotlinks"; they SHOULD BE (include the icon within the hypertext reference code).
- Two URLs given by a DOE staff person were wrong, the addresses were wrong, and the phone contacts were wrong. I needed to verify all of these after they were published (and verified by a DOE staff person prior to printing). It sounds like a simple exercise to locate that information for two DOE programs/projects; Climate Wise and Climate.
- Requested resource address information regarding solar design but this request has not been answered as of yet.

During the telephone interviews, negative experiences were referred to a representative of DOE. This provided an opportunity to respond, and resulted in corrections. Customer support services are important to customer satisfaction. The ability to react when something goes wrong is one of the most important factors in satisfying customers. Several respondents were pleased to be able to tell someone about their problems, and felt that the survey was demonstrated a commitment to meeting user needs. Users remarked at being glad that DOE is taking an active voice in soliciting information from people by means of surveys like this one.

Referral of problems was not as easy for responses arriving via electronic forms. These responses were stripped of identifying information before loading into the database.

5.3.5 (14.) Did the information provided through EREN reinforce something you already knew?

Figure 14-1. EREN used as a Reference Tool

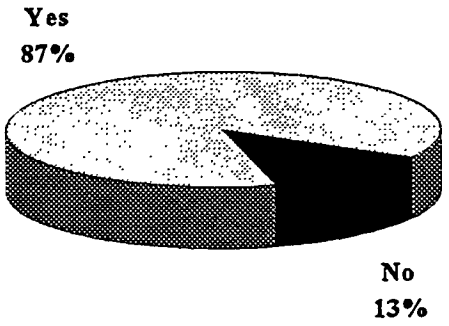


Table 14-1 Respondents using EREN as a Reference Tool

Answer	Interviews N=40	%	Electronic Forms N=46	%	Total N=86	%
No	4	10%	7	15%	11	13%
Yes	36	90%	39	85%	75	87%

Of course it reinforced previously known information, as one respondent wise-cracked, "you know everything already!" As shown in the table, most respondents indicated that EREN provided information reinforcing something they already knew and used EREN to check facts. This reflects EREN's value as a reference tool.

Respondents voiced their own ideas about what sorts of information EREN should contain:

"EREN should be a place where DOE posts original content, like press releases and briefs, and directories of who to call for specific questions. It should provide phone numbers, or e-mail addresses at agencies, where to go with your problem."

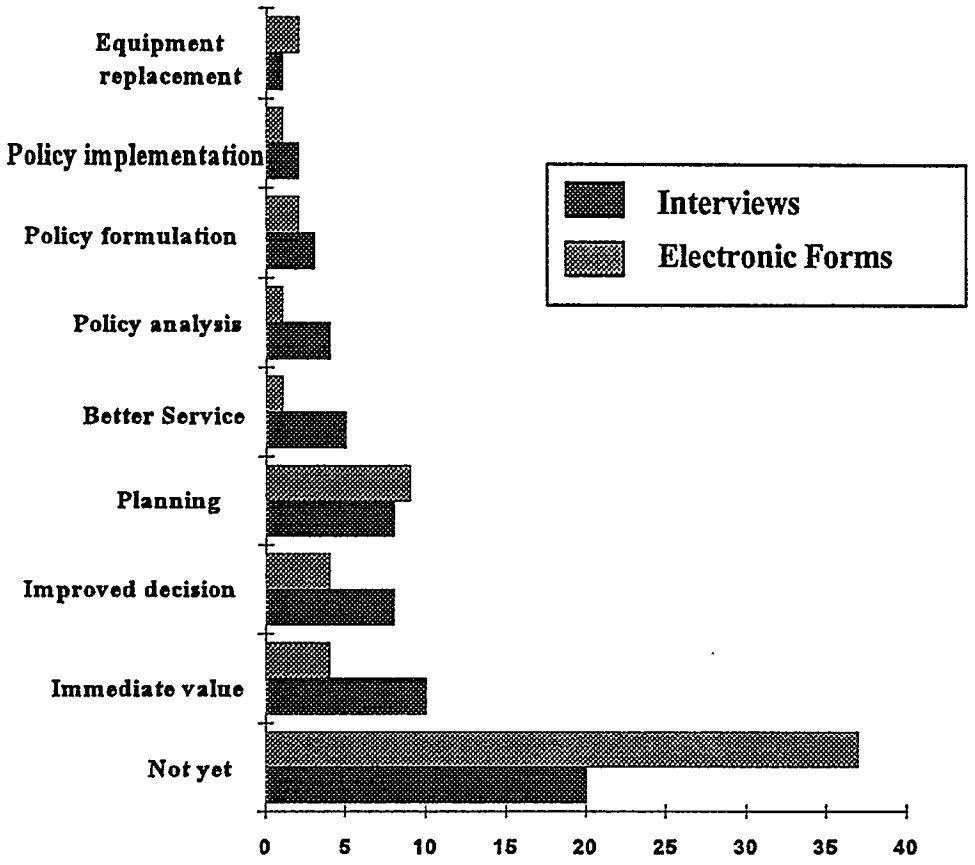
"People doing web pages should emphasize content of their own, not what others have already done. What's interesting are the research reports, from National Labs, and government projects."

One respondent said that EREN should be a place to ask questions, like...How should I insulate my house?

5.3.6. (15.) Was anything initiated because of information obtained through EREN?

Users may draw on EREN's information resources to initiate some activity, demonstrating again the value of the service.

Figure 15-1. Comparison of Responses, Activities Initiated



Answers to the preceding Questions 13 and 14 show that EREN is used to obtain new information and to verify already existing information. Question 15, then, further probes for the impact of that use. As shown in Figure 15-1, EREN is used mainly for planning and improved decision making, and is of immediate value on specific projects. However, the majority of EREN's users have not yet initiated any activity. This is to be expected, given the numbers of respondents who have only recently accessed the service.

A variety of other specific actions were reported as a direct result of EREN use: The information will affect what one user teaches; Ways to improve another Internet site; Contact with one of the National Laboratories; Ability to write a more informed article; Input to an existing study; Links to a related site. On the other hand, the use of EREN initiated looking elsewhere for information that wasn't found on EREN. Another user had a negative experience that initiated a search for help which eventually ended positively. Another person's discovery of inaccurate information lead him to contact the agencies involved, who will be correcting the misinformation.

5.4. Section 4. Alternatives to EREN

In judging EREN's performance, alternatives to the use of EREN must be considered. Alternatives to the use of the service are elicited by Questions 16 and 17. Question 16 asks whether EREN was the first source consulted to find the information. A list of alternatives, including an open-ended 'other' category are provided. The user is asked to choose among alternatives or to describe another. Question 17 asks users who consulted EREN as a first source to name another source that would be used if EREN were not available. The sources named can be used to compare with EREN and are important for benchmarking and strategic planning. Copies of the homepages of the named alternatives are available in Appendix G.

5.4.1 (16.) Was EREN the first source you consulted to find the information?

Figure 16-1.

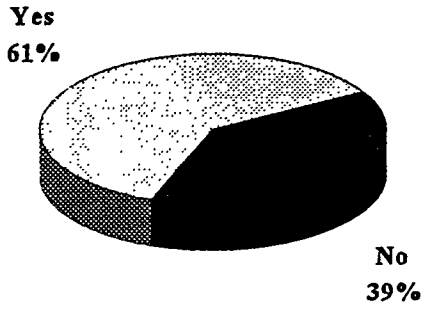


Table 16-1.

Answer	Interviews N=40	%	Electronic forms N=52	%	Total N=90	%
a) Yes	13	32%	23	44%	36	39%
b) No	27	68%	29	56%	56	61%

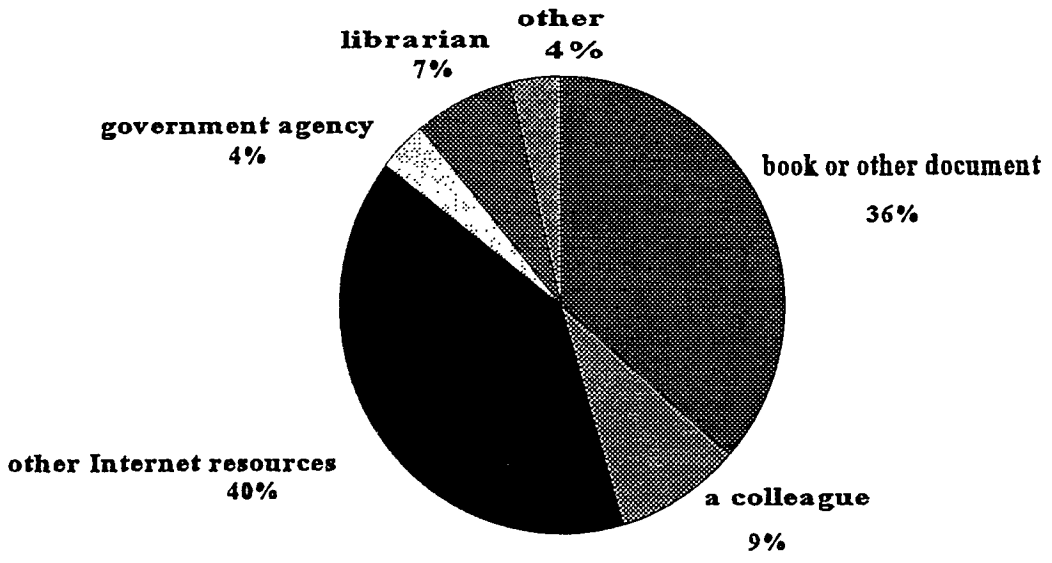
As shown here, about one-third of EREN users who responded used EREN as the initial source. Considering that it is based on new technology and that there are many alternatives for information gathering, this priority use of EREN shows its success as an information tool. In commenting about EREN, one user said that the service was a good source of information, and it provides a good springboard for paths to other resources.

If you answered no, what was the first source?

Table 16-2. Number and Percentage of Respondents Reporting Use of Various Sources of Information

Answer	Interviews N=27	%	Electronic forms N=29	%	Total N=55	%
c) book or other document	11	41%	10	34%	21	36%
d) a colleague	2	7%	3	10%	5	9%
e) other Internet resources	10	37%	12	41%	22	40%
f) government agency	0	0%	2	7%	2	4%
g) librarian	2	7%	2	7%	4	7%
h) *other*— Personal experience Internal files	2	7%	0	0%	2	4%

Figure 16-1. Proportions of Initial Sources Reported if EREN Was Not the First Source.



Of the 39% of users who initially used sources other than EREN to find information the last time they were seeking it, it is interesting to note that there are two primary sources for information, traditional sources such as books and other documents, and other Internet resources. Thirty-six percent indicated that they would consult a book or other document. A slightly higher number, 40%, would use another Internet tool. Colleagues were named as initial sources only 9% of the time. Compared with past studies of information-seeking behavior, this is a low number. This change may be viewed as a change in information seeking behavior, or it may be that the colleagues to consult are those that have become Internet resource providers.

5.4.2 (17.) What would have been your source for information, if EREN were not available?

Table 17-1. Sources That Would Be Consulted If EREN Were Not Available.

	Sources Named					
	N=50	%	N=52	%	Total N=102	%
a) It would not be available elsewhere.	4	8%	6	12%	10	8%
b) I would obtain it from a colleague.	11	22%	6	12%	17	22%
c) I would have contacted an agency by telephone.	5	10%	6	12%	11	10%
d) I would obtain it from a library.	13	26%	16	31%	29	26%
e) I would obtain it from another source.*	17	34%	18	35%	35	34%

* Other sources specifically named in the interviews were:

"Sustainable Minnesota" WWW Homepage
INFOSeek, or some other search engine
Trade periodicals especially "Buildings Magazine"
CADDET
GreenTie
PIEnet
EPRI
Empirical research
Sandia
the Source
Commercial databases
SOLSTICE/CREST (2)
LBL
BPA
NASA
DOE
WSEO
NTIS
NREL
Canadian Trade Journals
Library Online Catalogs
Post to news group sci.energy.hydrogen

Other sources specifically named on electronic forms were: NASA, a university library, technical journals and textbooks.

The question of alternative sources for information if EREN was not available elicited some interesting reactions. Several alternative online sources were specifically cited. One user was concerned that EREN may be somewhat redundant with LBL. A number of the respondents indicated that these alternative sources were not nearly as good as EREN, either because of cost or ease of use. The next most cited sources were libraries (26%) and colleagues (22%). These are more traditional sources. It is interesting to compare Questions 16 and 17, showing that EREN replaces consultation with colleagues.

The observation was made that a unique feature of EREN is that it includes both the societal and business sides of energy efficiency and renewable energy.

One user said that EREN's scope was too wide, and gave the example of looking for information on "lighting." He was interested in energy efficient lighting, but the subject of energy efficiency on EREN was too broad. Instead, he looked at GE Lighting's homepage, and found information more quickly, because of the narrower focus.

Users pointed out that energy information should be accessible, but that you don't want to duplicate what's already provided, with 'government' duplicating machine cataloging of resources. Some advised that EREN should not just duplicate other search engines, but should concentrate on original content.

Concern about duplication of print products was also expressed. One user asked if it was more cost effective to put the codes and regulations online, or if books should be made more available. He hoped for replacement in moderation, and urged EREN's developers to "think conservation - not expenditure." Another user appreciated the format of EREN, which allowed her office to stop being a brochure clearinghouse.

Appreciation of EREN's link with EPA projects was expressed, as was the suggestion that EREN be linked with resources such as National Resources Canada (NRCAN). Interest in building relationships between Canada and the U.S. was evident, expressed as "cross pollination" by one respondent, who remarked on the large body of interest in energy efficiency and renewable energy that exists in Canada. He pointed out that each country wants to be seen as distinct, but actually, many Canadian products are American, and regulations in one country affect production in the other. The Canadian Energy Management Task Force (EMTF) members share information across great distances, mostly by E-mail.

As noted previously, consultation with colleagues has often been shown to be a source of first resort and it is interesting that the Internet and more specifically, EREN, may be becoming a viable alternative. One respondent reported that for him the use of EREN replaces going to meetings. The developers and suppliers of information resources through EREN are becoming the colleagues with whom users consult.

Finally, it is interesting to note that 8% of the respondents indicated that EREN has unique information not available elsewhere. Success stories accessed from the main EREN homepage, Department of Energy news, and reports of ongoing and proposed projects were all mentioned as important and original content that should be included on EREN. One user observed that there seems to be a push for the deployment of technologies. This user would like to know the innovative nature of the DOE contracts that are awarded. In the marketplace, energy efficiency acts as a financial benefit. He would like to understand how DOE plans to stimulate the market, so that he can follow the example.

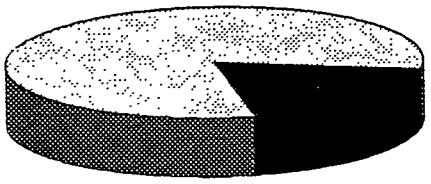
5.4.3 (18.) Please estimate how much time was saved by using EREN instead of another source.

This questions helps to quantify the value of EREN's links, as compared to alternative sources of information. Since the 'work' of searching for information is almost entirely intellectual, the time involved in locating an item is considered evidence of effort expended. This time can be used to estimate the value of savings to the customer—savings of time and energy in their jobs. A dollar value for the savings provided (in terms of time, manpower, and materials saved) quantifies the benefits and the results of using EREN.

Fifty-five of the sixty-eight people who answered this question said that EREN saved time for them. Time savings that were reported by individuals ranged from 15 minutes to 4 weeks.

Figure 18-1. EREN as a Time Saver.

81% Saved time by using EREN



19% Did not save time by using EREN

Considerations of time included the time that would have been spent in search of individual resources in libraries and time spent tracking down the appropriate agency by phone. One user said that "One hour on EREN equals 500 times as much as conventional reading." He noted time saved as 5 days, just to order, process, and receive other documents. Another said that he'd have spent time looking for the information elsewhere, but might never have found it.

Interviews. Thirty-three of the people who were interviewed expressed an opinion on how much time EREN saved them. This includes eight people who said that no time was saved. Some who reported that they saved no time also said that they used EREN as a supplemental source, and one said that he didn't save time, but new opportunities were identified. There were others who reported that they didn't find what they were looking for, making their searches something of a waste of time. Even so, the average amount of time saved, as recorded during interviews, amounted to 9.15 hours saved, per person, per use of EREN.

Electronic Forms. Thirty-five people responded to this question on the electronic forms. Five of the responses were that no time was saved and, of these, one respondent reported that he wasted an hour and a quarter. Never-the-less, 30 people did think that EREN saved them time. The average amount of time savings reported on electronic forms was 13.75 hours.

Total. Considering all 97 participants in the survey, regardless of whether or not they responded to this question, the average amount of time saved is 8 hours, per user, for a single use of EREN.

General Use

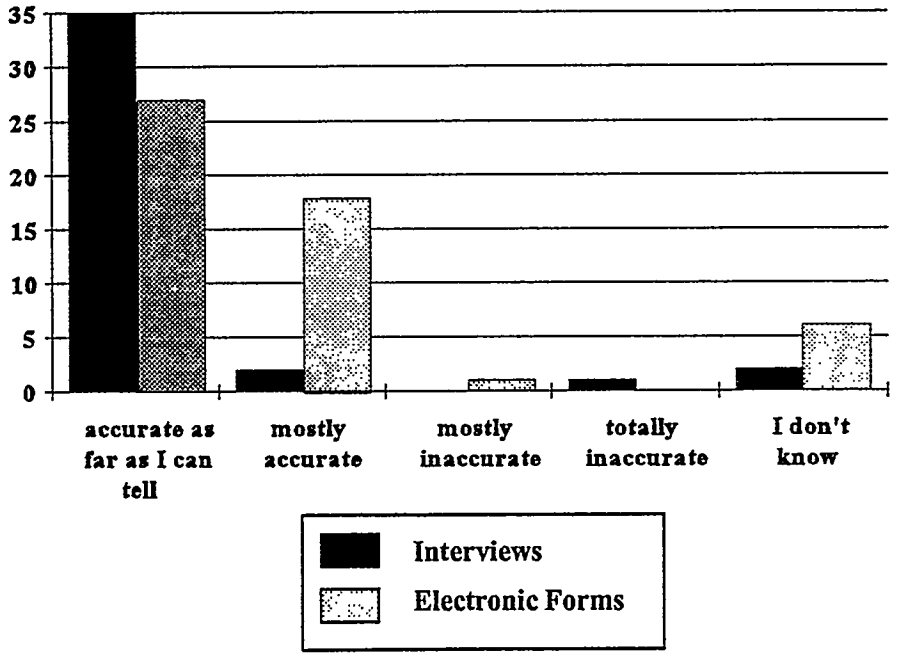
The preceding questions, 12-18, concerned a single incident of EREN use. In the following questions, respondents were asked to consider their overall use of the information resources available through EREN and to answer the remaining questions with their general use in mind.

5.4.4 (19.) Are EREN's information resources ACCURATE?

The extent to which the customer trusts EREN, and DOE, can be judged by responses to Questions 19 and 20 regarding the accuracy and currency (timeliness) of EREN's information resources. Presumably, if the resources are accepted as accurate, they are also trusted. If they are seen as current, that is, presented in a timely manner, they are trusted to be up to date.

Eighty-nine percent of respondents consider EREN's information resources to be accurate. As shown in Figure 19-1, 62 out of 92 respondents considered EREN's resources to be "accurate as far as I can tell," while 20 responded that they were "mostly accurate." This is a high level of confidence in EREN, and in DOE. As one respondent said, he trusted the information on EREN because of the organization behind it (DOE). This confidence brings with it great responsibility, and the necessity of certifying the accuracy of government information as well as making distinctions between information disseminated by government agencies and that of non-governmental entities.

Figure 19-1. Perceived Accuracy of EREN



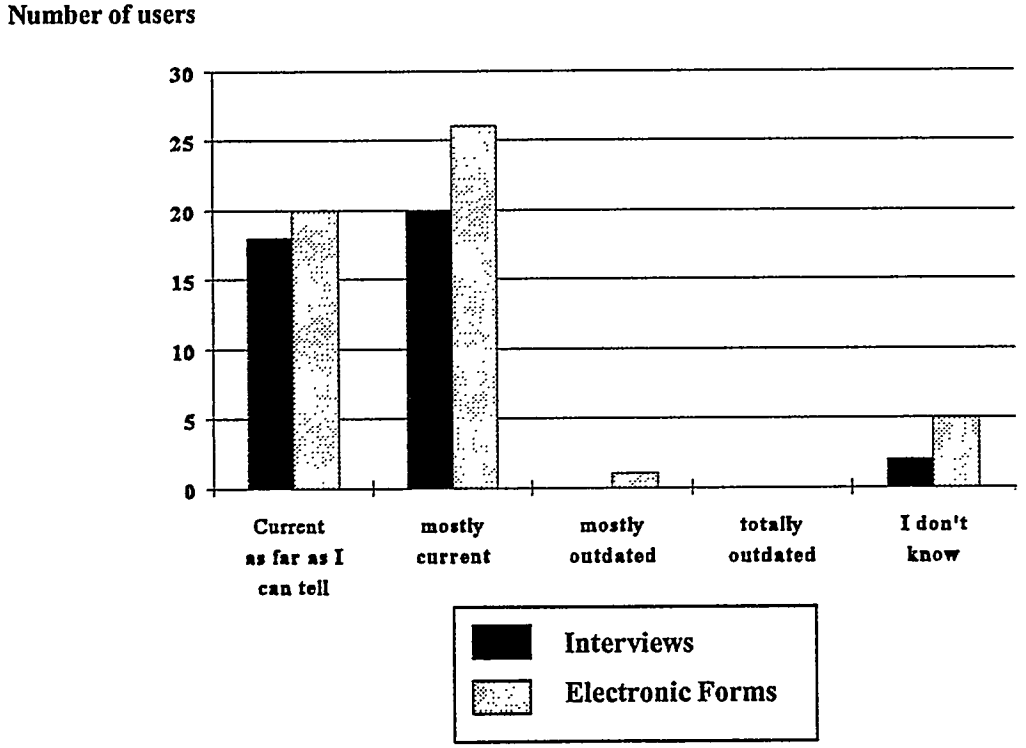
5.4.5 (20.) Are EREN's information resources CURRENT?

The currency of EREN's resources were not quite as positively perceived as was the accuracy. Forty-one percent felt that the resources were 'current, as far as I can tell' and 50% of them reported that they were only 'mostly current.' Given that the delivery channels allow for essentially real time, update-ability, this lack of currency is clearly an issue for the content producers. Since EREN is used for the purpose of 'current awareness,' as revealed previously in the answers to Question 11, attention to the currency of resources is important. Users observed that the nice thing about a website is that it can be updated, whereas a library can't keep books as relevant. Printed materials quickly become obsolete, and the technologies of energy efficiency are moving fast, making stable technology reference materials unreliable.

While current information is required by most users, many of them understand that information that may be out of date may still be the best information. One user reported encountering problems with out of date information within her own organization. Studies that had once been funded were no longer being sponsored, so no funding existed to provide updates. However, the out of date information will often provide 'leads' or pointers to more current information, as in the case of directories. If the person whose name is associated with a directory listing no longer holds a certain position, the position may still be occupied, in which case, a phone number will still lead to a contact.

The two users who answered that they didn't know whether EREN's resources were current voiced suggestions that all information should carry both the date it was reported or written, and the date the information was mounted.

Figure 20-1. Perceived Currency of EREN



Benefits of EREN Use

Question 21 asks if the user finds some benefit in the use of EREN. The answer serves to demonstrate a level of satisfaction with the system, reasoning that benefits of use contribute to satisfaction with the use of the system. A second part of the question urges the respondent to describe the benefits gained from information provided through EREN. The answer may be given in free form, as a narrative, thus soliciting responses that neither the questionnaire's authors nor EREN's designers may have anticipated.

Energy or environmental outcomes that result from interaction with EREN can be shown in responses to Questions numbered 15 and 21, and more specifically in Question 22, that asks if nonrenewable energy use will be reduced by using the information obtained through EREN. The respondent is asked to describe how energy use will be reduced, or savings realized, and even how much energy will be saved through the use of information retrieved through EREN.

5.4.6 (21.) In general, do the information resources available through EREN provide some benefit to you or your organization?

Figure 21-1.

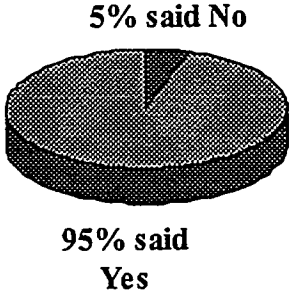


Table 21-1.

Answer	Interviews N=40	%	Electronic forms N=50	%	Total N=91	%
a) No	2	5%	3	6%	5	5%
b) Yes	38	95%	48	94%	86	95%

Ninety-five percent of respondents said that they or their organization received benefits from using EREN as an information resource. Although the questionnaire provided some suggestions about possible benefits in technology areas, most comments could be grouped into the following areas:

More complete or more efficient information gathering;
Greater opportunities for information dissemination;
Better networking with colleagues;
Inspiration or motivation for action; and
Information that helped with company management, policy or marketing.

5.4.6.1 EREN Benefits

c) **Please describe the benefits gained from information provided through EREN.** (*Benefits from replacement of equipment, adoption of new technology, improvement of processes, etc.*)

Note: Some comments directly quoted from Electric Forms and Interviews are listed first, followed by paraphrased comments naming benefits mentioned by more than one individual.

"I would not be able to provide my students with this information without your service. I could not get this, expediently, ready for my students any other way. Now my students have up-to-date, real world information which will be with them for life."

"I work with a state program which requires the use of alternative fuels by fleet vehicles. The transportation area of EREN helps me stay informed of new transportation technologies. Although the information could be obtained by calling DOE, it is easier to regularly browse the web pages rather than calling after I need a specific type of information. I particularly appreciate the mailing list by which information on updates and changes to the server are e-mailed directly to my computer. This helps save time and effort."

"I think that it is nice to know that there are some reasonable people in this world who want to make money by doing business in environmentally friendly technologies and techniques."

"Knowledge of other organizations, contact people, overview of status in certain fields"

"I am learning a lot of general information about energy efficiency. I have also found information on seminars, one of which I am planning to attend."

"Without this resource it would be very difficult for me to get the information or to make the contacts that I have. The service is very good and inquiries are promptly answered, which makes me better at my job."

"Most everything I need can be referenced via EREN and available links."

"Provides a source of background information and current data that is useful in evaluating projects that our organization is active with. Also a good source of general information on ongoing biomass energy activities."

"It has helped in preparing the state comprehensive energy plan."

"Keeping current on new technology allows me to make decisions based on facts."

"References for: establishment of an energy policy; adoption of better practices concerning the buying of energy efficient equipments and materials; carrying out life cycle costing analysis."

"I've obtained really invaluable information as an input to both consultancy and writing activity, as well as an ongoing update on my knowledge which is hard to quantify in terms of benefits."

"I have also made some really good/valuable contacts specifically via the AESP-Net, for which I have enormous praise."

"Structured knowledge of work in USA, which is often at the fore front, and elsewhere."

"This may be of benefit to the organizations concerned as well as to us, as we tend to use Internet resources on a give as well as take basis."

"Providing information to the Canadian bioenergy technology industry through an electronic newsletter."

"Upgraded equipment to use Internet and EREN."

"Saving time, energy and money by sending e-mail communications."

"Quick retrieval of timely and reliable information."

"Agency time and money are saved since information is available through EREN (and EREC). We either retrieve the information and forward it to our constituents or provide them with the appropriate URLs so they can use the services themselves. Our agency no longer needs to be a "brochure clearinghouse"."

"The "What's New" sections of EREN give us an opportunity to learn more about other activities and ideas. Even with regularly using EREN, we may not have thought to search for information on many of the topics. Seeing this information, in many cases, has served as the catalyst to look into new ideas and contacts."

"Having timely and reliable energy information available at a "one-stop shop" location on the Internet is extremely helpful and efficient. I learn about new electronically-available information sources so I can guide others to them."

"Helping us with a new marketing strategy regarding energy efficient windows."

"Increase the file of knowledge on energy storage technologies."

"I'll be much better able to answer customer questions and discuss energy efficiency/renewable options available."

"Information obtained through EREN helps us in our program planning and development by improving our awareness of new opportunities, and increasing general awareness. We expect that conservation projects may result."

"Keeping me updated with works that are being done be some other people and gives me ideas about other works."

"EREN allows me to keep current on new technology and services. I particularly appreciate the listserv feature that alerts me when there is a new listing!"

"A good source to keep current on topics and news in the renewable energy field, especially relating to residential purposes."

"When considering a heat pump for my home, I was able to determine that there may be more cost effective and conservative ways to address the heating problem in my house."

Information from EREN helps in keeping current in the field (14)
Quick way to get in touch with other organizations and professionals (5)
Improvement of energy technologies and organizational capabilities (4)
Reference to other sources for supporting material (4)
Getting new information from DOE increases opportunities (3)
Intellectual curiosity is aroused, and satisfied (3)
Information for developing training manuals (2)
Less paper use and filing time (2)
Cutting electrical consumption (2)
Reduces the number of trips to the library (2)
Provides confirmation, and confidence to customers - lends credibility to the company's work (2)
Opens [foreign country] to new resources they wouldn't know about otherwise (2)
Provides examples of interesting, different ways of organizing utilities
Builds context for the understanding the marketplace
Acquainting concerned parties with results of energy technologies (3)
Access to new technologies, ways to improve energy use (2)
Lead to a multimillion dollar energy reduction proposal
Provides a guide for industry on eco-efficiency
In new house construction, enabled cost effective power, water, heating/cooling system planning
Easier access to the subject I am researching.(3)
Sparked an interest in Energy Efficiency, inspired the pursuit of a graduate degree
Provided a general, technical background to develop policy statements
Gives insights on core competencies which can apply to commercial/government ventures
Benefits to industry, linking with universities
Networking possibilities - replaces going to meetings (2)

Benefit in learning about the EREN system, so that [foreign country] can do something similar
Expands knowledge of players in the Renewable Energy industry (2)
Benefits in the area of product information (2)
Better relevance in the teaching of energy-related subjects (3)
Benefits by helping to write better, more accurate reports
Faster dissemination of information
Having access to reliable, up-to-date information on Biomass (2)
Having immediate, online, direct access to current, reliable information from the National Labs
More high quality information to more people, more inexpensively
User Group messages are a constant reminder, help to keep motivation up

There were also some concerns:

"I think that I am already aware of much of what EREN publishes and so am using it to watch for new developments. I find the mix of commercial and non-commercial sources a little confusing. I think that is fine as long as you make good choices."

"Technology transfer is generally more valuable than product information due to the motive issues."

5.4.6.2 Savings from Use of EREN

d) Can you estimate how much savings will result from the benefits described above?

Table 22-2. Savings resulting from benefits

	Interviews N=32	Electronic Forms N=23	Total N=55
d) none	5	11	16
e) less than $100.00	4	2	6
f) $101.00 - $500.00	3	2	5
g) $500.01 - $1,000.00	3	0	3
h) $1,000.01 - $5,000.00	9	5	14
I) $5,000.01 - $25,000.00	1	1	2
j) $25,000.01 - $50,000.00	2	0	2
k) $50,000.01 - $100,000.00	2	1	3
l) $100,000.01 - $1,000,000.00	1	0	1
m) Greater than $1 million	2	1	3

The identification, investigation, and adoption of a particular technology or process takes a considerable amount of time. Since users of EREN have only been using the network an average of 7.4 months, not enough time has elapsed to actually implement a new policy or technology as a result of information learned from using EREN, therefore even speculation about expected savings was not possible for many respondents. These are their comments:

- Can't predict [energy savings] at this point.
- Can't quantify at this stage, I'm afraid.
- Still too early to predict.
- Can't quantify yet.
- Unknown at this time.
- Impossible to quantify.

Even for those who did mention a specific technology, the actual energy saved per year seemed to be quite difficult to quantify, since it was unknown how widespread the adoption of the new technology would be. Several respondents guessed that it would be quite large. Despite the difficulty in quantifying benefits and savings, respondents were able to identify beneficial outcomes, such as participation in Government/Industry partnerships, in doing research in the field of renewable energy where any information can help on the way to success, giving better informed answers using this information in a teaching environment many others can benefit from my research and your efforts.

5.4.7 (22.) Will nonrenewable energy use be reduced, or savings realized, by using the information obtained through EREN?

Figure 22-1.

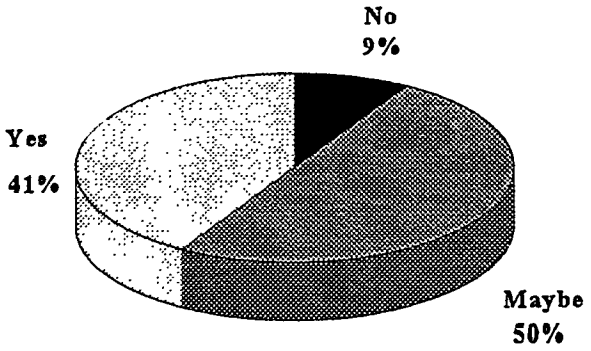


Table 22-1.

ANSWER	INTERVIEWS N=40	%	ELECTRONIC FORMS N=52	%	TOTAL N=92	%
a) No	5	12.5	3	6	8	9
b) Maybe	13	32.5	33	63	46	50
c) Yes	22	55	16	31	38	41

Energy or environmental outcomes that result from interaction with EREN are described in the following sections, in response to the questions that followed from a "yes" answer to Question 22.

5.4.7.1 Energy Use/Savings

If the answer is yes,

d) Please describe how energy use will be reduced or savings realized.

Several interviewees were able to mention a specific technology. For example, using solar technology for street lighting would eliminate transformer and power line losses over 5-6 miles of transmission area. Others identified more general means of energy use reduction. Some of their comments were:

- My students will have this information as they go through life, and will, hopefully, make good decisions in private and in the workplace.

- I plan to utilize information obtained in redesigning my home and it's usage as well as our property usage.

- Using solar panels for home heating

- Mostly new lighting technologies discussed.

- By influencing policies/programmes for national energy conservation in all sectors in the country, and by positively influencing general attitudes towards renewables.

- General improvement in building energy efficiency techniques, avoidance of duplication of work.

- Users of nonrenewable energy sources can learn how to utilize current technologies, information and financing to use the resource more efficiently or, better yet, convert to a renewable energy resource. As a state agency, we can learn more about technologies and programs available to nonrenewable energy users and broker that information to them in an effort to help them reduce their use.

- Using new garbage incineration technology to save energy.

- Through the education/information I provide to customers.

- By showing clients that affordable, effective technology exists that allows them to increase profitability while reducing their environmental impact and energy consumption.

- I am setting up my own residential power system. I am getting good basic resources for this.

5.4.7.2 Energy Savings Per Year

e) How much energy will be saved, per year?

Interviews

- Projected energy saved (in heating and cooling) in the million BTU's, measured in kilowatt hours.

- Expected 6% savings in nonrenewable energy.

- Energy saved would be measured at 1.48×10^{11} BTU's a year.

- Expected energy saved would be 5-10%.

- Energy savings in avoiding a drive to the library, saving gas. (2 respondents)

- Initial application is small but it will expand, and there may be a 2-4% reduction of nonrenewable energy use. The savings are already bigger than they had estimated by using solar-powered remote alarm sirens.

- By saving kilowatt hours of electricity, I estimate saving $3,000 per year. (Several new homes constructed.)

- Replacing 500-watt with 2- watt florescent bulbs saved 410,000 watt hours per year.

- Through the use of information on photovoltaics, wind, and geothermal energy, they will save 80,000 megawatt hours.

- The R&D they're doing on fuel cells is potentially going to save nonrenewable energy, but they can't use it with their existing technology. It will cost them before it saves energy.

- Expected at least 10% savings in heating costs, with greater savings of up to 25% down the line.

- Savings are in fuel for the airlines, $1,000-2,000 as well as in airfare and in hotels, because one respondent doesn't need to attend meetings since he is able to use EREN's information and networking possibilities.

- Savings of 16 megawatts of power.

- To determine how much energy would be saved requires a full-blown analysis, on a site-by-site basis. The savings are real but the magnitude is hard to tell...impossible to estimate.

- No idea how much energy is saved, but it is significant.

Electronic Forms

- Hopefully, we will be able to heat our home with passive solar use, which means these wicked Wisconsin winters might be easier on our heating costs energy consumption.

- Impossible to quantify, but it certainly has made my consultancy work much more 'saleable' and valuable/valued.

- $200

- 200 kw

- US$ 100,000,000.00

- Maybe a few million kWh.

- Potentially lots.

- Maybe a million million, if a successful general point is disseminated.

Larger Audience for EREN

Metrics must take into account that there are limitations on measuring usage by who comes and goes from the system. The answers to the following questions quantify the actual use of the system. Secondary dissemination often reaches a wider audience than the statistics on the uses of EREN, as recorded by the system, may indicate. Although each user is identified there as one use of the service, each may represent a greater number of indirect users. These numbers provide a more accurate quantitative assessment.

5.4.8 (23.) Do you pass the information or benefits from the information found through EREN on to others?

Figure 23-1.

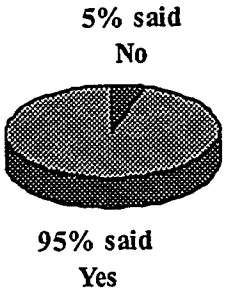


Table 23-1.

Answer	Interviews N=40	%	Electronic forms N=53	%	Total N=93	%
a) No	2	5	3	6	5	5
b) Yes	38	95	50	94	88	95

5.4.8.1 EREN User Representation

How many others receive the information, or benefits from the information?

Calculating from the numbers reported to share in the information, or benefits from the information (as shown in the table below) at the very least, 84 users of EREN represent 120,142 people. Using the higher figures, 84 EREN users may represent, at most, 201,530 people.

Table 23-2.

	Interviews N=37	Electronic Forms N=47	Total N=84
c) 1-5	12	26	38
d) 6 - 10	7	7	14
e) 11 - 50	8	2	10
f) 51 - 100	0	2	2
g) 100 - 500	5	3	8
h) 501 - 1,000	2	0	2
I) 1,001 - 5,000	1	2	3
j) 5,001 - 25,000	1	2	3
k) more than 25,000	1	3	4

One user reported that 260,000 people receive their newsletters and bill stuffers. People share the information with colleagues in their departments, members of associations, and subscribers to magazines. Teachers share the information with their students, and students share with their peers. Researchers write papers that will be shared by numerous attendees at conferences. Consultants share the information with their clients.

Some respondents provided information on how many people would be affected indirectly. For example, as the environmental coordinator for many buildings, one user reported that 100 to 500 people will be indirectly affected. Another said that while he shares the information directly with field crews, there are also 330,000 utility users in his area who would be affected by the information.

5.4.9 (24.) How important are these links to information resources provided by EREN?

Indicate the importance these links have for you by marking the boxes, "Very Important, Moderately Important, Not Important". If you have not used the link, mark that box, but you may also indicate if you feel the link may have some potential importance to you.

Table 24-1 shows the number of people who reported using each resource, the number who rated the resource type as either very important or moderately important, as well as the proportion of users rating it as important. Numbers and proportions of respondents who thought it had potential important are also shown.

Table 24-1. Information Resource Types. Use, Importance, Satisfaction Ratings.

Information Resource Types	N = Used By	N = Rating Very or Moderately Important	N = Not Used Potentially Important	Average Satisfaction Rating
a) Bibliographic Information	54	23 (43%)	20 (74%)	3.8409
b) Bulletin Boards	36	26 (72%)	25 (55%)	3.8076
c) Codes and Regulations	41	17 (41%)	22 (54%)	3.2962
d) Data files	47	16 (34%)	24 (71%)	3.5135
e) Directories	56	24 (43%)	17 (65%)	3.9302
f) Discussion Groups	33	22 (67%)	29 (58%)	3.23
g) Educational Resources	52	21 (40%)	17 (57%)	4
h) FTP Servers	40	22 (55%)	23 (55%)	3.6551
I) Full-text Publications	59	15 (25%)	16 (70%)	3.8723
j) Gopher Servers	38	26 (68%)	20 (45%)	3.6451
k) International Sites	43	22 (51%)	24 (60%)	3.4
l) Newsletters and Magazines	60	26 (43%)	15 (65%)	3.8571
m) Press Releases/Briefs	65	35 (54%)	7 (41%)	3.8431
n) Products and Services	57	30 (53%)	14 (56%)	3.5454
o) Programs and Projects	60	27 (45%)	12 (55%)	3.5217
p) Searchable Databases	58	13 (22%)	21 (81%)	3.6595
q) Software	41	22 (54%)	26 (63%)	3

Table 24-2. Resource Types Listed in Descending Order of Use.

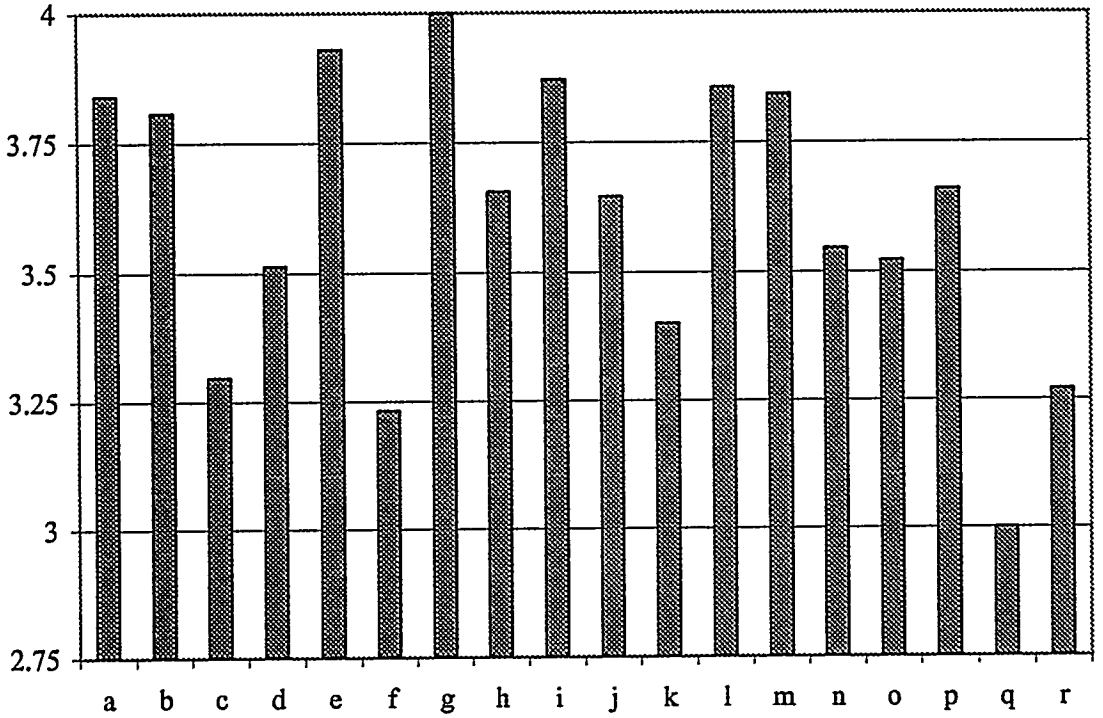
Resource Type	Number of Users
m) Press Releases / Briefs	65
l) Newsletters/ Magazines	60
o) Programs and Projects	60
I) Full-text Publications	59
p) Searchable Databases	58
n) Products and Services	57
e) Directories	56
a) Bibliographic Information	54
g) Educational Resources	52
d) Data Files	47
k) International Sites	43
c) Codes and Regulations	41
q) Software	41
h) FTP Servers	40
b) Bulletin Boards	36
f) Discussion Groups	33
r) Visuals	33

5.4.9.1 Satisfaction Rating

If you have used these links, please indicate your satisfaction with each one. Use a scale from 1 to 5, with 1 = very dissatisfied, 5 = Very Satisfied.

Users rated their satisfaction with resources types available through EREN by assigning a number from 1 to 5. The numbers were multiplied by the number people who gave that response. The average satisfaction rating was calculated by adding these response numbers together and dividing the total response number by the number of people who provided a satisfaction rating. The resulting averages can be translated into a range of values; 1 = very dissatisfied, 2 = mostly dissatisfied, 3 = neutral (neither satisfied nor dissatisfied), 4 = mostly satisfied, and 5 = very satisfied.

Figure 24-1. Average Satisfaction Ratings



The letters refer to the resource types listed in Table 24-1.

All resource types had average satisfaction ratings between 3 (neutral, neither satisfied nor dissatisfied) and 4 (mostly satisfied). Many resource types were given 'very satisfied' ratings by individual respondents. Only a few resource types were given a rating of 'very dissatisfied' by any one respondent. Although the ratings may be helpful as benchmarks to be compared in subsequent studies, the apparent differences in the numbers are so slight that they should not be seen as definitive.

Each resource type represents a variety of resources available through EREN. Users' Group members receive regular updates on new resources added to EREN, so the mix of resources that are rated changes over time. Interviews revealed that not all respondents were aware of the types of resources available through EREN, nor did they necessarily make a distinction between the different types. 'Bibliographic information' and 'searchable databases' can be seen as similar. 'Newsletters

and magazines' can also be seen as 'full-text publications'. While the interviewer was able to explain the types by reading lists of resources associated with each resource type, there is no way to be certain that responses generated on electronic forms reflect the same resources.

Table 24-2. Resource Types in Descending Order of Satisfaction Rating.

Resource	Satisfaction Rating
g) Educational Resources	4.00
e) Directories	3.93
I) Full-Text Publications	3.87
l) Newsletters and Magazines	3.85
m) Press Releases/Briefs	3.84
a) Bibliographic Information	3.84
b) Bulletin Boards	3.80
p) Searchable Databases	3.65
h) FTP Servers	3.65
j) Gopher Servers	3.64
n) Products and Services	3.54
o) Programs and Projects	3.52
d) Data files	3.51
k) International Sites	3.40
c) Codes and Regulations	3.29
r) Visuals (other)	3.26
f) Discussion Groups	3.23
q) Software	3.00

Additional information was provided in the interviews when respondents were asked for explanations for any low ratings given. Many suggested looking at other information resources for improvement of EREN's resources (Appendix G).

Comments made about the resource types are as follows:

Bulletin Boards, with their separate dialups are a pain, and are not really useful, because they have become obsolete. The respondent prefers to use one interface only. The most useful are Usenet newsgroups, and sharing with colleagues.

Bulletin Boards used to be the main means for getting information, but now, he doesn't use them. Bulletin Boards have old information, but now it's available through websites.

Bulletin boards, make them easier to get to, to find

Codes and Regulations: You can go to a library, sit down with a book, or get the codes from a building inspector. Why should that be online? How much does it cost to buy the book? Each city hall and building inspector should have it. What form should the codes be in? How many people use them?

Whenever one respondent looks for codes and regulations, they're under construction, and no information is available.

In Codes and Regulations, he doesn't see much on the site, and thinks there should be more information available on Appliance efficiency ratings, environmental impact of the clean air amendment. Look outside of the efficiency area regulations, to things that don't directly affect energy, they may indirectly affect it. Manufacturing firms, in order to comply with clean air amendment, have to change their manufacturing technology; there should be more about that.

More comprehensive coverage of pending/current/ existing energy related legislation from Congress to energy codes by states (maybe just links to existing resources).

He'd like to see visuals related to codes and regulations.

Data files: Solar could be treated better, made easier to access.

Visuals are a step in the right direction, but the solar map is useless to the average user, it's too small to really see. If you could zero in on a specific area, to find out wind resources: constant wind speed, peak energy possible, to determine if a windmill is viable for a specific area. Graphics aren't as important as a table would be for showing this sort of information.

Data files are not as comprehensive as one respondent would like.

Data files, he'd like to see Insolation levels.

Directories are weak, but with the Government Manual online, that helps, but still, EREN needs improvement.

EREN should have better information for DOE personnel, they're hard to get hold of - you need e-mail addresses. The DOE phone book directory makes it hard to find people with Pittsburgh Energy Research, and DOE Washington.

Directories; looked for NREL, didn't find it.

Create a directory of people who have equipment, are skilled, and can to the work of energy efficiency, retrofit, etc. Lighting, remodeling, consumer oriented, like the Power Smart page, directly to consumers. Encourage people to develop short 'cut sheets' on what they're doing—direct them to online resources and marketing materials.

He'd like to see a directory that identifies individual experts.

Discussion groups: After buying a $5,000 gas furnace, he found out on a discussion group that he still would be using electricity, and with the fuel cost, he wouldn't actually save anything. That was all on a discussion group that wasn't moderated by the government, and without taxpayer expense.

Too many amateurs giving advice.

In using discussion groups, if you have a question, and don't know who to ask, you broadcast the questions, and someone will answer. EREN can be useful that way.

One respondent would like to know how to get into a discussion group.

Discussion groups, keeping up is a headache - too much e-mail

Maybe discussion groups shouldn't be moderated by the government.. just a place to post questions, and get answers from those who know.

Discussions could include questions and answers

He'd like to see more discussion groups on utility deregulation, retail competition, and their effects on the development of energy efficiency and renewable energy.

FTP servers, and gopher servers are obsolete, replaced by new technology.

There should be more information to get on the FTP servers

FTP is notoriously busy.

FTP is troublesome, sometimes not able to download files, she finds that they're cumbersome. You have to go through 6 or 7 levels to get to one file. There is not a directory available, telling what's in the files.

Full text publications, provided a pointer only, but he got the text off line.

He'd like to see full text of academic publications, research papers.

The full text of every DOE or EI document should be on EREN.

Gopher servers are not always available for public access, which is important.

Other Gopher servers are available, EREN need not duplicate.

Gopher Servers; he doesn't mess with gophers anymore, just uses WWW.

Gopher servers, there is enough of that out there, DOE doesn't need to do it, too.

Gopher servers are a good way to stay connected.

More support is needed on gopher servers; there's a search box, but no directory.

International sites don't include much for Canada (in keyword search).

In "International sites" and "programs and projects", he'd like information on third world, remote, rural places, because that information also applies to US desert area applications. For example, he'd like to see information on Bolivia or Botswana; anything being done there?

Newsletters and magazines are not all in there, she'd like to see additional newsletters and magazines, more current ones.

Newsletters and magazines don't provide much information (because they want you to buy the magazine). He'd like to see the magazine "Home Energy" (from California), because they have micro-hydro information.

Press releases and briefs are not updated frequently.

Press Releases /Briefs are either not kept current, or there are no releases.

Press releases and briefs should be kept updated.

Press releases are a week behind, he uses EEI even for DOE stuff or PR newswire (Public Relations newswire) list of Headlines, "Today's energy, utilities environment" headlines, Press releases from agencies, headlines from Associated Press, he also accesses stories from Knight Ridder. [Earnings, stock boards, mergers, new product services]

Press releases and briefs are not timely, and not comprehensive. It's a date listing only, and needs better organization, not just by date.

Products and Services: The respondent is interested in power controllers in house, using power on demand, new technologies.

Trade journals are the most current and accessible sources for information. Even the advertising is information. If there is a new product brought to market, they want you to know about it.

Products and services information is not complete, but that may be impossible.

The respondent used to get EPRI, for products and services, but now, the AEP (American Electric Power system contains some of that.

Products and services are rated dissatisfied because of the way they're organized.

Products and Services weakness is that there aren't enough price lists and vendors.

Products and services, finding information is hard

Products and services should link to Integrated Power Corporation.

Programs and Projects are not comprehensive.

Programs and projects have so much information, it needs a friendlier index, or front page.

After reading in Programs and projects, he decided not to go after government funding

Programs and projects should be expanded to include all state and federal level programs and projects related to energy and energy efficiency. EREN should be the coherent spot to find all of that type of information.

Searchable databases: If this is the only link to these databases, then, it's great, it draws attention to them.

When the respondent searched for 'motors' in a searchable database, nothing came up. Databases are not as complete as this respondent would like.

In the searchable databases, put more of DOE's accumulated knowledge about energy projects, results, cost/benefit ratios -online.

Software - As looking toward homeowners - on an individual level would be useful.

Software, Would like to have energy heat transfer programs for normal consumers.

He'd like to see online access to interactive computer software for a variety of Energy Efficiency planning techniques and how to size and install solar water heaters.

Visuals - maps are wonderful, but not specific enough - 4 state region is really too big. At least can get an idea of what is there. The better the legend, the better the map.

Users Group. It's a good service. He likes messages for the users group informing of new services.

Helpful sending information about new sites (User group updates).

"What's New" section is helpful, and so is the users group.

The User's group is very helpful, providing information about the new things added to EREN. The first thing he looks at when he goes to EREN is "What's new in EREN". That is very helpful.

E-mail users group very useful - one of the most useful things about EREN.

Messages from the Users Group he just scans and deletes, but he doesn't mind. It's a little bit like junk mail, but its well organized junk mail.

He likes the new information sent out from the Users Group, it saves him the trouble of checking for new stuff.

He said that he didn't use EREN as much as he should. He finds the User's Group messages helpful, and he passes them on to colleagues throughout his office.

The way he uses EREN is to check out the URLs from the Users Group messages. He goes directly to the locations, rather than through the EREN page. His perception of EREN was that it was a sort of newsgroup, sending information about new resources.

ELECTRONIC FORMS COMMENTS

The E-mail with information about new pages and subjects are very important for me, because it gives the possibility to get a fast overlook. Altogether, your information are very interesting but, actually, there is little time to read them all.

5.4.10 (25.) What other information would you like to see added to EREN?

Question 25 asks for other information that the user would like to see added to EREN. It is in the narrative response to this question that comparisons to other systems or other resources can be made.

Opportunities for respondents to suggest avenues for EREN's improvement and reinvention are offered in Questions 24 and 25. In addition, these questions provide the opportunity for respondents to identify the criteria they use in judging the performance of the service and any problems they may have encountered while using it. Their comments provide important input on the specific issues that are of concern to the individual user of each particular service.

Added information comments and requests from the Interviews are as follows:

1. Added information? The range is already mind boggling. He can't come to terms with everything that is already there!

2. Where there is new technology, he'd like to see diagrams on how something works - for example, fuel cells - the technology continues to move forward in small steps - give diagrams.

3. He's interested in local issues, land rights with regard to hydropower.

4. He'd like to see more links to states.

5. He'd like to see more on a regional or statewide basis. Wind is a site-specific technology, needs site specific information.

6. You might include: Standard PV array, cost, payback area, with the info. as a table.

7. Include suggestions of other people to contact...if someone's looking at solar energy, you might add, for example, the pointer: "Yellow Jacket Solar, in Lewis, Colorado specializes in remote sites." If there are only a few who do this, list them!

8. Make [information] interactive, or a table, i.e., If you want this power..., in 5% range, in terms of power needs, it will tell you if the project is viable.

9. Interested in information about work in South America. Would like to see Energy Programs or Relations with US energy programs - reach to South America

10. Put data in tables, instead of GIF format. He's using Lynx, so can't get the pictures.

11. He'd like to see more specific information on Wind, but realizes that specific data may not have been collected, or there may not be much available.

12. He would like more technical information, data, on new technologies, as well as the status of the technology..is it in research - or being used in a demo or pilot project? or is it used by any country?

13. He would like to see Fuel Cell Technology, or Hydrogen storage development.

14. He's looking for a technical description of what the barriers are that Fuel Cell Technology is trying to overcome, and also problems with hydrogen based technologies

15. There is a lot in there, question is how well you use it. Maybe there should be an online system to challenge the user, make them aware of what's already there. Add a learning process on how to use EREN. How do you get people to use it? Gimmicks, marketing.

16. He'd prefer not to have to go into EREC. Maybe an automatic EREC.

17. Publications - when you access it, you could automatically be put on message board to receive info about new products, services.

18. Some Internet sources, like NASA, provide data on CD ROM. Sometimes on EREN, there is a problem with copying the information. If it were available on CD ROM it would help.

19. Provide links to other Internet sources, for example, in Canada. If he could just go to EREN as the source, it would be better. (CADDET link)

20. He'd like to see budget numbers associated with energy efficiency's operations

21. He'd like to see added a regularly updated list of organizations in the known world that are involved in renewable energy.

22. He'd like to see a well developed search site that is reliably indexed, with enough ports so that everybody can access it, without getting a "busy server" message.

23. He's waiting for videos to download

24. He has seen a demo of an Internet Voice service, would like to see EREN go in that direction. You don't have to key in the information, you just use voice recognition (he realizes that technology is in the future)

25. He'd like to see information on services to sell.

26. It would be neat to go to EREN for energy job listings -with the people available for employment, and companies looking for people to hire.

27. He'd like to see the Common Heritage page linked to EREN. Now, there's nothing on deep ocean water.

28. His product, a Radiant Control Coating, keeps the sun's rays in / or out depending on the application. He was called as an expert witness at an ASTM (American Society of Testing Materials) meeting, because they want to standardize radiant control coatings. It's a ceramic based product, talked about in ceramic newsletters.

29 He'd like to know about who is testing new technology? Executives network with their peers, and that's the kind of info that is useful. Also give names and numbers to enable them to contact the person who's working on it.

30. He'd like to see the CBD daily listings, to be able to check things out.

31. Add the date when written- how current is it? Add dates on information that is mounted - date the information was written and date the information was mounted.

32. Add Biomass information on wood energy cropping, not just ethanol

33. Generally uses EREN for information he's specifically looking for. Would like EREN to have more on the use of Renewable Energy and Energy Conservation.

34. There is a lot of information reported. He's curious, as an entrepreneur, he's looking for opportunities to be part of projects, business deals..

35. He'd like to see a forum where people could exchange ideas. He'd like to see, (as in CBD), business opportunities for cooperative research forum, like town hall meetings forum. Renewable Energy Business Developments.

36. Building Energy Technology and Office of Industrial Technology - Print publications contain massive amounts of references to important studies. Put them online. Some of the documents are impossible to get.

37. NTIS produces substantial bibliographic citations, the public has to subscribe to get them, though, and they're expensive..they should be put online.

38. He checks EREN frequently, and would like to see things updated more often.

39. There is a big program of the Office of Industrial Technology, who subcontracts with Rutgers University and other Universities, they have students collecting data on energy efficiency retrofitting. It's downloadable, but there's nobody who has put a summary, or discussion of what this data means. Have there been papers written? Any Conclusions? That information should be put together, in view of the scope of that program and its energy audits.

40. Consider adding a list of companies around the world who manufacture energy efficiency products..but he realizes that there may be a problem with Government favoritism with the private sector.

41. He suggests doing a regular scan of the Patents and trademarks, collecting information on new technologies, and intelligence collected on the production of new energy efficiency products.

42. Issues of the Office of Industrial Technology, Building Energy Technology should be machine readable, and on EREN. The most recent edition in the library he goes to is [six months old].

43. Maybe the focus of the work is pollution prevention, but energy efficiency happens at the same time. Bring that out.

44. He'd like to have access to weather data-/degree day data for specific locations.

45. He'd like to see EREN link _all_ Doe sites on the Web. There are a lot of DOE pages, all scattered around. EREN should integrate all of DOE pages, and link them more clearly. (i.e. "Here all of the DOE pages" link with a click.)

46. Would like to see selection criteria for micro/hydro ...ie. stagnation temp. for greenhouse heating/cooling and downloadable systems design engineering tools

47. He'd like to use EREN for other technologies, for electricity, but hasn't found much. EPRI does electricity, but will soon stop doing electrical technologies.

48. It would be nice if they have access to more documentation: online papers from ASHRAE (American Association of Heating and Refrigeration and Air Conditioning Engineers) and ISES (International Solar Energy Society)

49. He'd like to see Technical journals, interaction w/societies. There are some reports and verbiage, but not specific papers.

50. Add pointers to where to get stuff. (Online Document Delivery, or locations of libraries that hold the text)

51. Wants more DOE original information - National Lab coverage. EREN has its hands full shining a light on National Lab activities. EREN is great at spotlighting and integrating Lab and Commercial partnerships. Incentive programs, Technology Transfer.

52. He knows that NREL has photo libraries, and case study presentations. That would look nice on EREN. NRELs image databases of annotated pictorial search services...he'd like to see more.

53. He'd like to see more technical detail, needs more in-depth information. EREN may be ideal for general use, but he needs to dig deeper.

54. Add a feedback mechanism, to automatically register each user. Surprise the user with automatic e-mail, saying"You were using_____, what did you think? are you satisfied, or dissatisfied? (but that may be too 'big brother-ish')

55. EREN's home page should have a comment box, so user can say how they felt about using EREN, and if they had any problems.

56. Information on EREN is not directly related to Biomass: combustion of wood to electrical energy or heat - what is there, is more directly related to ethanol, not much in the way of energy cropping of wood.

57. He would like to see full text of academic publications. Promotional stuff is online, but very little hard facts to support what they say. He would like findings, backed up with references. He is looking for factual data presented in a scientific reasoned manner. You can put anything you want to on the Internet, but can you prove it with facts?

58. He doesn't use multimedia yet but in the future sound and vision may be more important. (and, might slow things even further)

59. EREN could get Canadian information on it. There is a staggering amount of information, hard to sift through it. Energy Efficiency Technology is so quickly moving. Learning new stuff is important in this field.

60. His need is -what is the new technology? What case studies have been done? What building retrofit information is there? There are some standard technologies developing. He wants to know what is happening now, or last week or month. He is not interested in the past, say a year ago.

61. Canadian regulation F40T12 - wattage lamp - it will be outlawing certain products. National Energy Code" will come into effect 1996 National Building Code - US should know about it. The important Standard ASHRAE IES90.1 / 1989 maximum wattage allowed. Similar regulation, now it will be a Canadian Law. You can only use this much energy .. or it is not in compliance. In concert, a number of regulations for energy efficiency standards for products, will take effect. It will be an interesting phase-out/in period for people who have bought 40 watt lamps, for example, or for those who have been using them, and can't use them anymore, or buy replacements.

62. Canadian codes are important to US manufacturing and should be added to EREN.

63. She'd like to see case studies, of making better, sellable products.

Added information comments and requests from the Electronic Forms are as follows:

64. Need to add National Energy and Environmental Education Homepage as a link.

65. Lesson plans for education.

66. Connections to smaller, more local groups working within communities, usable data sources of vendors and other companies working in specific technologies

67. Graphics appearance available using check boxes on the page to indicate a preference for graphical content.

68. More cross reference links to internal and external specific technology research and product information of interest to a specific industry at the bottom of every page, i.e. for the Office of Industrial Technology, the building technology's sulfur light, transpired collector, new glazing technologies, etc. may be of interest to those specifically interested in Industrial Technologies

43. Maybe the focus of the work is pollution prevention, but energy efficiency happens at the same time. Bring that out.

44. He'd like to have access to weather data-/degree day data for specific locations.

45. He'd like to see EREN link _all_ Doe sites on the Web. There are a lot of DOE pages, all scattered around. EREN should integrate all of DOE pages, and link them more clearly. (i.e. "Here all of the DOE pages" link with a click.)

46. Would like to see selection criteria for micro/hydro ...ie. stagnation temp. for greenhouse heating/cooling and downloadable systems design engineering tools

47. He'd like to use EREN for other technologies, for electricity, but hasn't found much. EPRI does electricity, but will soon stop doing electrical technologies.

48. It would be nice if they have access to more documentation: online papers from ASHRAE (American Association of Heating and Refrigeration and Air Conditioning Engineers) and ISES (International Solar Energy Society)

49. He'd like to see Technical journals, interaction w/societies. There are some reports and verbiage, but not specific papers.

50. Add pointers to where to get stuff. (Online Document Delivery, or locations of libraries that hold the text)

51. Wants more DOE original information - National Lab coverage. EREN has its hands full shining a light on National Lab activities. EREN is great at spotlighting and integrating Lab and Commercial partnerships. Incentive programs, Technology Transfer.

52. He knows that NREL has photo libraries, and case study presentations. That would look nice on EREN. NRELs image databases of annotated pictorial search services...he'd like to see more.

53. He'd like to see more technical detail, needs more in-depth information. EREN may be ideal for general use, but he needs to dig deeper.

54. Add a feedback mechanism, to automatically register each user. Surprise the user with automatic e-mail, saying"You were using_____, what did you think? are you satisfied, or dissatisfied? (but that may be too 'big brother-ish')

55. EREN's home page should have a comment box, so user can say how they felt about using EREN, and if they had any problems.

56. Information on EREN is not directly related to Biomass: combustion of wood to electrical energy or heat - what is there, is more directly related to ethanol, not much in the way of energy cropping of wood.

where they might otherwise not look into other subgroups because the group name implies no relevant information.

69. More information on Wave Energy

70. More information about storage systems

71. International information

72. International Issues

73. Electric Deregulation Information

74. Please try to make resource where one could find government funding for research and tests for turbine and other energy saving or improving projects also there is a need for financing for energy projects.

75. More PDF files about any energy subjects.

76. Opportunities for business (marketing, partnerships).

77. Referrals for users to local vendors.

78. Technical assistance with new technologies.

79. Clear directives for the obtainment of public domain software tools developed by DOE.

80. Downloading of final texts of EPAct 92, Energy Policies Rules, Building Codes.

81. The newsgroup seems to touch only the developing country. I'd like to include all aspects of energy efficiency and renewable energy in all countries.

82. More technical info on batteries and electric cars.

83. It would also be great to see more linkages with other parts of the developed world, especially Europe. However, I recognize that there isn't too much WWW information made available from (e.g.) the EU, and I regret this.

84. Energy efficiency related to good management and productivity - may already be on EREN.

85. As many papers on work done and work in progress in order to inform people about government activities and support of the energy industry.

86. More state-specific success stories.

87. EPAct Legislation.

88. Job-related information in EE/RE.

89. More EREC fact sheets.

90. More detailed information about electric cars.

91. Are there local (regionally) listings of energy efficiency/renewable energy professionals? Any user groups for discussing energy issues?

92. More news and resource material on US DOE programs and funding opportunities. Comprehensive links to other US DOE and energy-related web sites.

93. Links with paper sources in the different areas of energy.

94. I have heard through the "grapevine" about forced air heating systems that use a heat exchanger that gets its heat from a high efficiency water heater. From what I understand, there are options to replace the burner in a furnace that uses natural gas with a heat exchanger connected to a water heater.

    Another option I have heard of is an entire unit that replaces the forced air furnace and water heater. I have been searching for companies that make this equipment through professionals I know and on the Internet but have not been able to find anything useful. Can you help me with this?

5.4.11. (26.) Other Comments?

Other comments contributed by respondents during Interviews are as follows:

I think it is excellent, happy to see it.

It's a useful service.

She enjoyed the success stories, from the main home page, department news.

One user had trouble accessing EREN, and gave up after 6 collapses, explaining why his most recent access was less than 15 minutes.

"I'm glad EREN is there, glad it's got links to the White House and the hill. Technology is moving fast, but not fast enough. EREN is a start, , but its looking for a long way to go before it's really solid. What do they want it to be? For technicians? or ordinary people?" He wants -everything-!

Really happy to use it.

Great service, appreciates availability

"EREN is a good project, one of the best on the Internet." ("and you can quote me on that!")

Energy will be saved in developing countries..they can do it right the first time. It's too late for infrastructure that's already in place.

You don't need to have EREN collect the information, you can use an 'info seek', and that finds all the sources. It seems as though the government is duplicating the machine cataloging. In the spirit of reduced government, we don't want Energy to be a special case, exhaustively done.

EREN is good for a start, but it's hard to see where it's going. He's waiting for videos to download..because getting them mailed now is not cost effective.

He's glad that the government is doing EREN.

It's a pretty good model for us in developing something like it for our country. But our target group is industries only, and should only be the energy conservation aspects.

EREN has been a mystery to him, but the Network allows people who are interested in getting energy information to find it - but they can't find his information on deep ocean water through EREN. Why not?

Hawaii is ignored for science information, but there is scientific research, and projects going on in Hawaii, too.

New technology is the enemy of the status quo. The best bet is to put it where it doesn't yet exist, then it's not in competition. What delays the spread of technology is that people fear that the

innovator wants control of the innovation. But, the innovative idea is nothing without people taking it and doing something with it!

He's willing to do this survey, even tho he's busy, because we have to support each other.

The public access network website, gov. information utility puts out bimonthly newsletter two-page, 81/2 x 11, pictures, charts, illustrations, not as readily accessible as a web page. Scan it in, make it a picture. One document, a 4 page newsletter, graphic dept made into JIF files. (15 min to do)

One of the things he read on EREN was about Canada saving energy by replacing light bulbs, water heaters, and a couple of other things.. but that's nothing new, it's common knowledge on T.V., and in stores. You go to buy a water heater, and the sticker on it compares the energy efficiency to other models, types. Do you need that information on a computer?

Overall, wonderful resource, glad its there--keep it up.

She would like to see EREN continue.

She's skeptical about everything, not knowing if it's current.

He may sound negative in his comments, but he thinks EREN is great service, and that is why he was willing to respond to the request for participation.

Canada's Energy Management Task Force is given government information to disseminate information in a non governmental way. "This is the program we want to disseminate - get it out to the people". The common thread is a total lack of organization of information. There is so much information it is hard to organize.

Primarily he is just a student of EREN, he is still playing around on EREN - it is not a serious research site for him.

Not interested in Codes and Government, because that is American, he need Canadian. He is more interested in Products and Services.

He's interested in Current Technology and Canadian Government Programs

He's fascinated with EREN.

Greenhouse gas stuff is very important. One overarching development, if the Intergovernmental Panel on Climate Change stands up to scrutiny, there will be an enormous new requirement for the reduction of energy consumption in society. When that happens, EREN will become EXTREMELY important.

You can compare EREN to using a library, or a telephone directory, or to a coffee shop where you yack with friends to get information.

He appreciates the difficulty, and maybe he knows too much about energy information that's available.

Overall concept, approach and response rates a 6 on a 1-5 scale. This is a good way to spend tax money.

He would like to see the feedback from this survey, and compare it to the results in EREN. Internet has been property of academic and government, now it is more for popular usage.

Pretty good job, nice resource

"If half of the pages on the Internet maintained the same relevance, coherence, accuracy as does EREN, the Internet would truly be revolutionary."

Good System, Good Info, more important as fewer people to do the work.

Other comments contributed by respondents on Electronic Forms are as follows:

This is manna from heaven!

This is a beneficial resource now and has great potential for growth of benefits to the public.

Suggest you redo the questionnaire at six to nine month intervals

EREN is a great source for information. I am overwhelmed by all the information that I have found. Unfortunately I don't have time to follow all the leads.

Need DATES on all material and better search engine.

Thanks!

News, Events and Hot Topics don't seem to be very current. I'm a very new user and have basically just browsed around a bit.

Wonderful service: this is why we have government!

I believe you are providing an invaluable service that is the best I have seen anywhere.

Again I think the challenge will be to maintain a balance between technological innovations and marketing hype.

"In May 1995, Cynthia Beerbower, Assistant Deputy Director of Treasury told the House Ways & Means Committee that tax credits for biomass represented both bad tax and energy policy. Interestingly, no one from the DOE was present to present an opinion. I contacted Carman Difigilo of DOE and asked if DOE could present to Congress the benefits of biomass that could possibly justify the tax credits. The DOE said they had no such information.

This is the problem, too much R&D information, not enough real world information. DOE funding should not be cut for Biomass R&D, but the DOE is at fault by not doing their homework, providing voters with information to give to their congressmen.

"I was looking for information. Under the Contract for America, information has no value, that's why information-related and library budgets are being butchered and why no agency personnel have the guts to [go to] Congress and tell the Newties they are destroying the very fabric of the Nation's Infrastructures."

D:\EREN\SURVEY\FINALRPT\FINALRPT.496

Appendix A

Survey Instrument

OMB Control No. 1905-0188

Energy Efficiency and Renewable Energy Network
EREN
Customer Satisfaction Survey

PURPOSE OF THIS SURVEY

The Office of Energy Efficiency and Renewable Energy (EE) is eager to gather feedback from its customers about its performance. This information is useful in evaluating and improving its programs and services.

The Energy Efficiency and Renewable Energy Network (EREN) is a World Wide Web site developed for the Department of Energy's Office of Energy Efficiency and Renewable Energy to make information available to support the Department of Energy's (DOE) goals for increased U.S. industrial competitiveness, energy resources, science and technology, and environmental quality. It provides a gateway to online efficiency and renewable energy information sources. It is a multi-media network with links to maps, images, video, sound and text.

The purpose of this survey is to identify and define actual EREN users, to determine the kind and quality of services that user's want and their level of satisfaction with existing services, to determine user's preferences in both the sources of service and the means of delivery, and to determine the value or benefits derived from the use of EREN. This information will help to establish measures of performance for the continuous quality improvement of EREN.

We appreciate your taking the time to complete this questionnaire. When you provide us with this information, we can become more familiar with your interests and can develop EREN to better serve your needs.

CONFIDENTIALITY
Response to this survey is voluntary, and all responses will be held in complete confidentiality. Responses will be collected and the respondent's name and other identifying information will be separated from his/her responses for reporting purposes.

David Henderson
Department of Energy, Office of Scientific and Technical Information
P.O. Box 62 Oak Ridge, TN 37831
E-mail: david.henderson@ccmail.osti.gov
Telephone: (423) 576-1127
Fax: (423) 576-2865

Alice Anderson
Information International Associates, Inc.
P.O. Box 4219 Oak Ridge, TN 37831-4219
E-mail: aanderso@infointl.com
Telephone: (423) 481-0388
Fax: (423) 481-0390

Customer Satisfaction Survey

Energy Efficiency and Renewable Energy Network
EREN

The Energy Efficiency and Renewable Energy Network (EREN) is a gateway to worldwide information sources that contain information on energy efficiency and renewable energy technologies. It was developed to make information available to support the Department of Energy's (DOE) goals for increased U.S. industrial competitiveness, energy resources, science and technology, and environmental quality. **To help us monitor and improve the services provided, would you please consider your use of EREN, and answer the following questions:**

DEMOGRAPHICS

1. Which one of these groups best describes your affiliation?

[ ] a) Academia
[ ] b) Consumer / Private Citizen
[ ] c) Commercial
[ ] d) Federal Government
[ ] e) State / Local Government Utility
[ ] f) State/Local Government (other than Utility)
[ ] g) Commercial Utility
[ ] h) Other: _____

(i) please describe

2. What is your occupation?

[ ] a) student
[ ] b) engineer
[ ] c) scientist/researcher
[ ] d) teacher/academic
[ ] e) environmental activist
[ ] f) regional or urban planner
[ ] g) consultant
[ ] h) manager
[ ] i) librarian
[ ] j) inspector or compliance officer
[ ] k) administrator
[ ] l) supervisor
[ ] m) technician
[ ] n) farm operator
[ ] o) power generating plant operator, distributor, or dispatcher
[ ] p) sales and marketing
[ ] q) lawyer
[ ] r) architect
[ ] s) other_____

(t) please describe

3. What is your area of interest? (*Please mark all that apply*)

[ ] a) Agriculture
[ ] b) Biomass
[ ] c) Buildings
[ ] d) Hydropower
[ ] e) Industrial
[ ] f) Ocean Energy
[ ] g) Photovoltaics
[ ] h) Solar
[ ] i) Transportation
[ ] j) Wind
[ ] k) All Energy Efficiency Sectors
[ ] l) All Renewable Energy Technologies

4. How did you become aware of the Energy Efficiency and Renewable Energy Network?

[ ] a) Contacted by the Department of Energy
[ ] b) Personal Recommendation
[ ] c) Professional Society Publication
[ ] d) Through Keyword Search on the Internet
[ ] e) Saw a Demonstration
[ ] f) Conference
[ ] g) Other: _____
(h) please describe

5. When did you first start using EREN?

_____ month _____ year

EASE OF USE/ BARRIERS TO USE

6. Does any particular aspect of the service make it difficult to use?
(*Check all that apply*)

[ ] a) screen design
[ ] b) vocabulary
[ ] c) organization of material
[ ] d) access to adequate hardware and software
[ ] e) ability to save or print the results
[ ] f) ability to query
[ ] g) system response time
[ ] h) other: _____
(i) please describe

[ ] j) none

EREN has recently begun making documents available in PDF (Portable Document Format). PDF allows the EREN user to view documents as they would appear in their published format. Links to the Adobe Acrobat Reader, used for viewing PDF files, have been included on EREN.

7. Have you used the PDF option on EREN?
[ ] a) no
[ ] b) yes
[ ] c) I don't know

8. Would you like to see more documents in PDF posted on EREN?
[ ] a) no
[ ] b) yes
[ ] c) no opinion

9. Are you using a character-based or graphical browser?
[ ] a) character-based (i.e. Lynx)
[ ] b) graphical (i.e. Mosaic, Netscape)
[ ] c) I don't know

USAGE PATTERNS

10. In the past 30 days, how often have you used EREN?
[ ] a) 1 - 5 times
[ ] b) 6 - 10 times
[ ] c) 11 - 15 times
[ ] d) 16 times or more

11. For what purposes do you search using EREN? (Please mark all that apply)
[ ] a) Keeping Current
[ ] b) Developing competencies/learning
[ ] c) supporting an ongoing project
[ ] d) preparing a report for a meeting or publication
[ ] e) patent application
[ ] f) to open new opportunities
[ ] g) making a purchase for home use
[ ] h) consulting, or giving advice to others
[ ] i) management or executive work
[ ] j) administration or finance
[ ] k) marketing, sales, or sales management
[ ] l) legal work
[ ] m) other_____
(n) please describe

Please consider the last time you looked for information resources available through EREN, and answer the following questions with that search in mind. (Questions 12 - 18)

12. Considering your most recent access, how long did you spend searching EREN?

[ ] a) less than 15 minutes
[ ] b) 15 minutes or more, but less than 30 minutes
[ ] c) 30 minutes or more, but less than an hour
[ ] d) one hour or more, but less than two hours
[ ] e) two hours or more _____
(f) please quantify

13. Did you find out something, by using EREN, that you didn't know before? (*agency brought to your attention? technology you were unfamiliar with?...*)

[ ] a) no
[ ] b) yes
[ ] c) If the answer is 'yes', what did you learn?

14. Did the information provided through EREN reinforce something you already knew?

[ ] a) no
[ ] b) yes

15. Was anything initiated because of information obtained through EREN?

[ ] a) not yet
[ ] b) planning
[ ] c) procedures
[ ] d) equipment replacement
[ ] e) policy analysis
[ ] f) policy formulation
[ ] g) policy implementation
[ ] h) better service
[ ] i) improved decision making
[ ] j) of immediate value on a specific project
[ ] k) other: _____
(l) please describe

ALTERNATIVES TO EREN

16. Was EREN the first source you consulted to find the information?

[ ] a) yes
[ ] b) no

If you answered no, what was the first source?

[ ] c) book or other document
[ ] d) a colleague
[ ] e) other Internet resources
[ ] f) government agency
[ ] g) librarian
[ ] h) other _____
(i) please describe

17. What would have been your source for information, if EREN were not available?

[ ] a) It would not be available elsewhere.
[ ] b) I would obtain it from a colleague.
[ ] c) I would have contacted an agency by telephone.
[ ] d) I would obtain it from a library.
[ ] e) I would obtain it from another source. _____
(f) name the source(s)

18. Please estimate how much time was saved by using EREN, instead of another source.

[ ] a) none

[ ] b) minutes _____
(c)
[ ] d) hours _____
(e)
[ ] f) days _____
(g)
[ ] h) weeks _____
(i)

Please consider your overall use of the information resources available through EREN, and answer the following questions with your general use in mind.

19. Are EREN's information resources ACCURATE?

[ ] a) accurate as far as I can tell
[ ] b) mostly accurate
[ ] c) mostly inaccurate
[ ] d) totally inaccurate
[ ] e) I don't know

20. Are EREN's information resources CURRENT?

[ ] a) current as far as I can tell
[ ] b) mostly current
[ ] c) mostly outdated
[ ] d) totally outdated
[ ] e) I don't know

21. In general, do the information resources available through EREN provide some benefit to you or your organization?

[ ] a) no
[ ] b) yes

c) **Please describe the benefits gained from information provided through EREN.** (*Benefits from replacement of equipment, adoption of new technology, improvement of processes, etc.*)

Can you estimate how much savings will result from the benefits described above?

[ ] d) none
[ ] e) less than $100.00
[ ] f) $101.00 - $500.00
[ ] g) $500.01 - $1,000.00
[ ] h) $1,000.01 - $5,000.00
[ ] i) $5,000.01 - $25,000.00
[ ] j) $25,000.01 - $50,000.00
[ ] k) $50,000.01 - $100,000.00
[ ] l) $100,000.01 - $1,000,000.00
[ ] m) Greater than $1 million _____

(n) please quantify

22. Will nonrenewable energy use be reduced, or savings realized, by using the information obtained through EREN?

[ ] a) no
[ ] b) maybe
[ ] c) yes

If the answer is yes,
d) Please describe how energy use will be reduced or savings realized.

e) How much energy will be saved, per year?

23. Do you pass the information, or benefits from the information found through EREN, on to others?

[ ] a) no
[ ] b) yes

If the answer is yes,
How many others receive the information, or benefits from the information?

[ ] c) 1 - 5
[ ] d) 6 - 10
[ ] e) 11 - 50
[ ] f) 51 - 100
[ ] g) 100 - 500
[ ] h) 501 - 1,000
[ ] i) 1,001 - 5,000
[ ] j) 5,001 - 25,000
[ ] k) more than 25,000 _____
(l) please describe

24. How important are these links to information resources provided by EREN?
Indicate the importance these links have for you by marking the boxes,'Very Important, Moderately Important, Not Important". If you have not used the link, mark that box, but you may also indicate if you feel the link may have some potential importance to you.

If you have used these links, please indicate your satisfaction with each one.
Use a scale from 1 to 5, with 1 = very dissatisfied, 5 = Very Satisfied

Information Resource	Very Important	Moderately Important	Not Important	Satisfaction Rating	Have Not Used	Potentially Important
(a) Bibliographic Information						
(b) Bulletin Boards						
(c) Codes and Regulations						
(d) Data files						
(e) Directories						
(f) Discussion Groups						
(g) Educational Resources						
(h) FTP Servers						
(i) Full-Text Publications						
(j) Gopher Servers						
(k) International Sites						
(l) Newsletters and Magazines						
(m) Press Releases/Briefs						
(n) Products and Services						
(o) Programs and Projects						
(p) Searchable Databases						
(q) Software						
(r) Other						

25. What other information would you like to see added to EREN?

26. Other comments?

E-Mail Version of Survey Instrument

Energy Efficiency and Renewable Energy Network (EREN)
Customer Satisfaction Survey
We appreciate your taking the time to complete this questionnaire. When you provide us with this information, we can become more familiar with your interests and can develop EREN to better serve your needs.

David Henderson
E-mail: david.henderson@ccmail.osti.gov
Telephone:(423) 576-1127
Fax: 576-2865

Alice Anderson
E-mail: aanderso@infointl.com
Telephone (423) 481-0388
Fax: (423) 481-0390

To help us monitor and improve the services provided, would you please consider your use of EREN, and answer the following questions:

DEMOGRAPHICS
Where do you live?

State/Province_____

Country_____

1. Which one of these groups best describes your affiliation?
[ ] a) Academia
[ ] b) Consumer / Private Citizen
[ ] c) Commercial
[ ] d) Federal Government
[ ] e) State / Local Government Utility
[ ] f) State/Local Government (other than Utility)
[ ] g) Commercial Utility
[ ] h) Other:

(i) please describe

2. What is your occupation?
[ ] a) student
[ ] b) engineer
[ ] c) scientist/researcher
[ ] d) teacher/academic
[ ] e) environmental activist
[ ] f) regional or urban planner
[ ] g) consultant
[ ] h) manager
[ ] i) librarian
[ ] j) inspector or compliance officer
[ ] k) administrator
[ ] l) supervisor

[ ] m) technician
[ ] n) farm operator
[ ] o) power generating plant operator, distributor, or dispatcher
[ ] p) sales and marketing
[ ] q) lawyer
[ ] r) architect
[ ] s) other

(t) please describe

3. What is your area of interest? (Please mark all that apply)
[ ] a) Agriculture
[ ] b) Biomass
[ ] c) Buildings
[ ] d) Hydropower
[ ] e) Industrial
[ ] f) Ocean Energy
[ ] g) Photovoltaics
[ ] h) Solar
[ ] i) Transportation
[ ] j) Wind
[ ] k) All Energy Efficiency Sectors
[ ] l) All Renewable Energy Technologies

4. How did you become aware of the Energy Efficiency and Renewable Energy Network?
[ ] a) Contacted by the Department of Energy
[ ] b) Personal Recommendation
[ ] c) Professional Society Publication
[ ] d) Through Keyword Search on the Internet
[ ] e) Saw a Demonstration
[ ] f) Conference
[ ] g) Other:

(h) please describe

5. When did you first start using EREN?

month year

EASE OF USE/ BARRIERS TO USE

6. Does any particular aspect of the service make it difficult to use?

(Check all that apply)

[ ] a) screen design
[ ] b) vocabulary
[ ] c) organization of material
[ ] d) access to adequate hardware and software
[ ] e) ability to save or print the results
[ ] f) ability to query
[ ] g) system response time

[ ] h) other:

(i) please describe
[ ] j) none

7. Have you used the PDF option on EREN?
[ ] a) no
[ ] b) yes
[ ] c) I don't know

8. Would you like to see more documents in PDF posted on EREN?
[ ] a) no
[ ] b) yes
[ ] c) no opinion

9. Are you using a character-based or graphical browser?
[ ] a) character-based (i.e. Lynx)
[ ] b) graphical (i.e. Mosaic, Netscape)
[ ] c) I don't know

USAGE PATTERNS

10. In the past 30 days, how often have you used EREN?
[ ] a) 1 - 5 times
[ ] b) 6 - 10 times
[ ] c) 11 - 15 times
[ ] d) 16 times or more

11. For what purposes do you search using EREN? (Please mark all that apply)
[ ] a) Keeping Current
[ ] b) Developing competencies/learning
[ ] c) supporting an ongoing project
[ ] d) preparing a report for a meeting or publication
[ ] e) patent application
[ ] f) to open new opportunities
[ ] g) making a purchase for home use
[ ] h) consulting, or giving advice to others
[ ] i) management or executive work
[ ] j) administration or finance
[ ] k) marketing, sales, or sales management
[ ] l) legal work
[ ] m) other

(n) please describe

PLEASE CONSIDER THE LAST TIME YOU LOOKED FOR INFORMATION RESOURCES AVAILABLE THROUGH 'EREN', AND ANSWER THE FOLLOWING QUESTIONS WITH THAT SEARCH IN MIND. (Questions 12-18)

12. Considering your most recent access, how long did you spend searching EREN?
[ ] a) less than 15 minutes
[ ] b) 15 minutes or more, but less than 30 minutes

[ ] c) 30 minutes or more, but less than an hour
[ ] d) one hour or more, but less than two hours
[ ] e) two hours or more

(f) please quantify

13. Did you find out something, by using EREN, that you didn't know before? (agency brought to your attention? technology you were unfamiliar with?...)
[ ] a) no
[ ] b) yes
[ ] c) If the answer is æyes', what did you learn?

14. Did the information provided through EREN reinforce something you already knew?
[ ] a) no
[ ] b) yes

15. Was anything initiated because of information obtained through EREN?
[ ] a) not yet
[ ] b) planning
[ ] c) procedures
[ ] d) equipment replacement
[ ] e) policy analysis
[ ] f) policy formulation
[ ] g) policy implementation
[ ] h) better service
[ ] i) improved decision making
[ ] j) of immediate value on a specific project
[ ] k) other:

(l) please describe

ALTERNATIVES TO EREN
16. Was EREN the first source you consulted to find the information?
[ ] a) yes
[ ] b) no

If you answered no, what was the first source?
[ ] c) book or other document
[ ] d) a colleague
[ ] e) other Internet resources
[ ] f) government agency
[ ] g) librarian
[ ] h) other

(i) please describe

17. What would have been your source for information, if EREN were not available?
[ ] a) It would not be available elsewhere.
[ ] b) I would obtain it from a colleague.
[ ] c) I would have contacted an agency by telephone.
[ ] d) I would obtain it from a library.
[ ] e) I would obtain it from another source.

(f) name the source(s)

18. Please estimate how much time was saved by using EREN, instead of another source.
[ ] a) none
[ ] b) minutes _____
[ ] d) hours _____
[ ] f) days _____
[ ] h) weeks _____

PLEASE CONSIDER YOUR OVERALL USE OF 'EREN' IN ANSWERING THE FOLLOWING QUESTIONS:

19. Are EREN's information resources ACCURATE?
[ ] a) accurate as far as I can tell
[ ] b) mostly accurate
[ ] c) mostly inaccurate
[ ] d) totally inaccurate
[ ] e) I don't know

20. Are EREN's information resources CURRENT?
[ ] a) current as far as I can tell
[ ] b) mostly current
[ ] c) mostly outdated
[ ] d) totally outdated
[ ] e) I don't know

21. In general, do the information resources available through EREN provide some benefit to you or your organization?
[ ] a) no
[ ] b) yes

c) Please describe the benefits gained from information provided through EREN. (Benefits from replacement of equipment, adoption of new technology, improvement of processes, etc.)

Can you estimate how much savings will result from the benefits described above?

[ ] d) none
[ ] e) less than $100.00
[ ] f) $101.00 - $500.00

[ ] g) $500.01 - $1,000.00
[ ] h) $1,000.01 - $5,000.00
[ ] i) $5,000.01 - $25,000.00
[ ] j) $25,000.01 - $50,000.00
[ ] k) $50,000.01 - $100,000.00
[ ] l) $100,000.01 - $1,000,000.00
[ ] m) Greater than $1 million

(n) please quantify

22 .Will nonrenewable energy use be reduced, or savings realized, by using the information obtained through EREN?
[ ] a) no
[ ] b) maybe
[ ] c) yes

If the answer is yes,
d) Please describe how energy use will be reduced or savings realized.

e) How much energy will be saved, per year?

23. Do you pass the information, or benefits from the information found through EREN, on to others?
[ ] a) no
[ ] b) yes

If the answer is yes,
How many others receive the information, or benefits from the information?
[ ] c) 1 - 5
[ ] d) 6 - 10
[ ] e) 11 - 50
[ ] f) 51 - 100
[ ] g) 100 - 500
[ ] h) 501 - 1,000
[ ] i) 1,001 - 5,000
[ ] j) 5,001 - 25,000
[ ] k) more than 25,000

(l) please describe

24. How important are these links to information resources provided by EREN?

IMPORTANCE
Indicate the importance these links have for you by marking æV'=Very Important, 'M'= Moderately Important, 'N'=Not Important". If you have not used the link, mark with an 'X', but

you may also indicate if you feel the link may have some potential importance to you by marking it 'PI'.

SATISFACTION If you have used these links, please indicate your satisfaction with each one.Use a scale from 1 to 5, with 1 = very dissatisfied, 5 = Very Satisfied

(a) Bibliographic Information
(b) Bulletin Boards
(c) Codes and Regulations
(d) Data files
(e) Directories
(f) Discussion Groups
(g) Educational Resources
(h) FTP Servers
(i) Full-Text Publications
(j) Gopher Servers
(k) International Sites
(l) Newsletters and Magazines
(m) Press Releases/Briefs
(n) Products and Services
(o) Programs and Projects
(p) Searchable Databases
(q) Software
(r) Other

25. What other information would you like to see added to EREN?

26. Other comments?

Thank you for taking the time to complete this questionnaire. Your responses are important.

Energy Efficiency and Renewable Energy Network (EREN)

Please note: If you experience any difficulties, (or if you are not using a forms-capable browser) you may request an electronic mail version of the survey form by sending a message to Alice Anderson at: aanderso@infointl.com . Currently, we know that Netscape and the AOL browser work satisfactorily. However, NCSA Mosaic, Microsoft Internet Explorer, and IBM OS/2 Web Explorer *do not work satisfactorily* with this form.

EREN Customer Satisfaction Survey (Part 1)

PURPOSE OF THIS SURVEY

The Office of Energy Efficiency and Renewable Energy (EE) is eager to gather feedback from its customers about its performance. The purpose of this survey is to identify and define actual EREN users, to determine the kind and quality of services that users want and their level of satisfaction with existing services, to determine users' preferences in both the sources of service and the means of delivery, and to determine the value or benefits derived from the use of EREN. This information will help to establish measures of performance for the continuous quality improvement of EREN.

CONFIDENTIALITY

Response to this survey is voluntary, and all responses will be held in complete confidentiality.

To help us monitor and improve the services provided, would you please consider your use of EREN, and answer the following questions:

DEMOGRAPHICS

1a. Where do you live?

State/Province: [ ]

Country: [ ]

1b. Which one of these groups best describes your affiliation?

[unanswered ▼]

If you chose "other" affiliation, please describe in the box below.

Affiliation Other: [ ]

2. What is your occupation?

[unanswered ▼]

If you chose "other" occupation, please describe in the box below.

Occupation Other: [ ]

3. What is your area of interest? (Please mark all that apply)

- [x] unanswered
- [ ] Agriculture
- [ ] Biomass
- [ ] Buildings
- [ ] Hydropower
- [ ] Industrial
- [ ] Ocean Energy
- [ ] Photovoltaics
- [ ] Solar
- [ ] Transportation
- [ ] Wind
- [ ] All Energy Efficiency Sectors

☐ All Renewable Energy Sectors

Multiple items may be chosen.

4. How did you become aware of the Energy Efficiency and Renewable Energy Network?

unanswered

If you chose "other" for question 4, please describe in the box below.

Aware Comments:

5. When did you first start using EREN?

Month:

Year:

EASE OF USE/ BARRIERS TO USE

6. Does any particular aspect of the service make it difficult to use? (Check all that apply)

☒ unanswered
☐ Screen Design
☐ Vocabulary
☐ Organization of Material
☐ Inadequate Computer Resources
☐ Inability to Save or Print
☐ Inability to Query
☐ System Response Time
☐ Other
☐ None

Multiple items may be chosen.

If you chose "other" aspect, please describe in the box below.

Barrier Comments:

EREN has recently begun making documents available in PDF (Portable Document Format). PDF allows the EREN user to view documents as they would appear in their published format. Links to the Adobe Acrobat Reader, used for viewing PDF files, have been included on EREN. (http://www.adobe.com or FTP from ftp.adobe.com)

7. Have you used the PDF option on EREN?

◉ I don't know
○ no
○ yes

8. Would you like to see more documents in PDF posted on EREN?

◉ no opinion
○ no

◯ yes

9. Are you using a character-based or graphical browser?

I don't know

USAGE PATTERNS

10. In the past 30 days, how often have you used EREN?

unanswered

11. For what purposes do you search using EREN? (Please mark all that apply)

- ☒ unanswered
- ☐ Keeping Current
- ☐ Developing Competencies
- ☐ Supporting a Project
- ☐ Preparing a Report
- ☐ Patent Application
- ☐ Open New Opportunities
- ☐ Making a Purchase for Home Use
- ☐ Consulting or Giving Advice
- ☐ Management or Executive Work
- ☐ Marketing or Sales
- ☐ Legal Work
- ☐ Administration or Finance
- ☐ Other

Multiple items may be chosen.

If you chose "other" purpose, please describe in the box below.

Purposes Other:

Please consider the last time you looked for information resources available through EREN, and answer the following questions with that search in mind. (Questions 12 - 18)

12. Considering your most recent access, how long did you spend searching EREN?

unanswered

If more than two hours, please quantify in the box below.

Search Time:

13. Did you find out something, by using EREN, that you didn't know before? (agency brought to your attention? technology you were unfamiliar with?...)

- ◉ unanswered
- ◯ no
- ◯ yes

If yes, briefly describe what you learned, or name the subject of your search.

Learned:

14. Did the information provided through EREN reinforce something you already knew?

- (●) unanswered
- ( ) no
- ( ) yes

15. Was anything initiated because of information obtained through EREN?

not yet

If you chose "other" action initiated, please describe in the box below.

Initiated Other:

ALTERNATIVES TO EREN

16. Was EREN the first source you consulted to find the information?

- (●) unanswered
- ( ) no
- ( ) yes

If you answered no, what was the first source?

not applicable

If you chose "other" first source, please describe in the box below.

Source Other:

17. What would have been your source for information, if EREN were not available?

unanswered

If another source, please identify it in the box below.

Source Description:

18. Please estimate how much time was saved by using EREN, instead of another source.

Minutes:

Hours:

Days:

Weeks:

Please consider your overall use of the information resources available through EREN, and answer the following questions with your general use in mind.

19. In general, are EREN's information resources ACCURATE?

unanswered

20. In general, are EREN's information resources CURRENT?

unanswered

21. In general, do the information resources available through EREN provide some benefit to you or your organization?

- (●) unanswered
- ( ) no
- ( ) yes

If yes, please describe the benefits gained from information provided through EREN. (Benefits from replacement of

equipment, adoption of new technology, improvement of processes, etc.)

Benefit Comments:

Can you estimate how much savings will result from the benefits described above?

unanswered

If savings are greater than $1 million, please quantify in the box below.

Savings Comments:

22. Will nonrenewable energy use be reduced, or savings realized, by using the information obtained through EREN?

- (●) unanswered
- ( ) no
- ( ) maybe
- ( ) yes

If the answer is yes, please describe how energy use will be reduced or savings realized.

Reduction Description:

How much energy will be saved, per year?

Energy Saved:

23. Do you pass the information, or benefits from the information found through EREN, on to others?

- (●) unanswered
- ( ) no
- ( ) yes

If the answer is yes, how many others receive the information, or benefits from the information?

unanswered

If more than 25,000, please describe in the box below.

Description:

24. What other information would you like to see added to EREN?

Information Content Comments:

Other Comments:

Part 2 of this survey gives you the opportunity to rate the types of resources which you have used through EREN. Your responses are important.

If you are ready to submit Part 1of your respone, please click on the "Send Part 1!" button below. If you would like to start over with the survey form, click on the button below labeled "Clear and Start Over".

NOTE: *When you click on the "Send Part 1" button, the only visible action should be a momentary message in the status line at the bottom of your browser screen indicating that the form has been sent. Nothing else should change on the screen. If, when you press the button, an electronic mail screen opens, this is an indication that the browser which you are using does not fully implement forms capability. If you proceed to use the mail screen, all that we will receive is that small mail message instead of your forms response. If your browser produces this result, try to preserve the details of your response. Then go back to the top of this form and click on the link designated to obtain an electronic mail version of the form.*

Send Part 1! | Clear and Start Over

You're almost finished! Now please proceed to part 2 of the survey by clicking on the following link.
Part 2: EREN Resource Links Survey

Energy Efficiency and Renewable Energy Network (EREN)

Please note: If you experience any difficulties, (or if you are not using a forms-capable browser) you may request an electronic mail version of the survey form by sending a message to Alice Anderson at: aanderso@infointl.com .

EREN Customer Satisfaction Survey (Part 2)

EREN provides links to several categories of information resources. Part 2 is intended to determine the importance of these information links and to measure user satisfaction with these resources.

How important are these links to information resources provided by EREN?
If you have used links from EREN to any of the resources listed below, please indicate its importance to you. Even if you haven't used a particular link, but feel that it may have potential importance to you, please check the "Unused - Potentially Important " button.

How do you rate your satisfaction with the resources?
For resources which you have used, please indicate your level of satisfaction with each by entering a number from 1 to 5, with 1 = very dissatisfied and 5 = very satisfied.

Bibliographic Information: Importance

- (●) N/A
- ( ) Very Important
- ( ) Moderately Important
- ( ) Not Important
- ( ) Unused - Potentially Important

Satisfaction Rating: Bibliographic Information

BI satisfaction: [ ]

Bulletin Boards: Importance

- (●) N/A
- ( ) Very Important
- ( ) Moderately Important
- ( ) Not Important
- ( ) Unused - Potentially Important

Satisfaction Rating: Bulletin Boards

BB satisfaction: [ ]

Codes and Regulations: Importance

- (●) N/A
- ( ) Very Important
- ( ) Moderately Important
- ( ) Not Important
- ( ) Unused - Potentially Important

Satisfaction Rating: Codes and Regulations

CR satisfaction: [ ]

Data Files: Importance

- (●) N/A
- ( ) Very Important
- ( ) Moderately Important
- ( ) Not Important
- ( ) Unused - Potentially Important

Satisfaction Rating: Data Files

DF satisfaction: [ ]

Directories: Importance

- (●) N/A
- ( ) Very Important
- ( ) Moderately Important
- ( ) Not Important
- ( ) Unused - Potentially Important

Satisfaction Rating: Directories

Dir satisfaction: [ ]

Discussion Groups: Importance

- (●) N/A
- ( ) Very Important
- ( ) Moderately Important
- ( ) Not Important
- ( ) Unused - Potentially Important

Satisfaction Rating: Discussion Groups

DG satisfaction: [ ]

Educational Resources: Importance

- (●) N/A
- ( ) Very Important
- ( ) Moderately Important
- ( ) Not Important
- ( ) Unused - Potentially Important

Satisfaction Rating: Educational Resources

ER satisfaction: [ ]

FTP Servers: Importance

- (●) N/A
- ( ) Very Important
- ( ) Moderately Important
- ( ) Not Important
- ( ) Unused - Potentially Important

Satisfaction Rating: FTP Servers

FTP satisfaction: [ ]

Full-Text Publications: Importance

- (●) N/A
- ( ) Very Important
- ( ) Moderately Important
- ( ) Not Important
- ( ) Unused - Potentially Important

Satisfaction Rating: Full-Text Publications

FP satisfaction: [ ]

Gopher Servers: Importance

- (●) N/A
- ( ) Very Important
- ( ) Moderately Important
- ( ) Not Important
- ( ) Unused - Potentially Important

Satisfaction Rating: Gopher Servers

GS satisfaction: [ ]

International Sites: Importance

- (●) N/A
- ( ) Very Important
- ( ) Moderately Important
- ( ) Not Important
- ( ) Unused - Potentially Important

Satisfaction Rating: International Sites

IS satisfaction: [ ]

Newsletters and Magazines: Importance

- (●) N/A
- ( ) Very Important
- ( ) Moderately Important
- ( ) Not Important
- ( ) Unused - Potentially Important

Satisfaction Rating: Newsletters and Magazines

NM satisfaction: [ ]

Press Releases/Briefs: Importance

- (●) N/A

- ◯ Very Important
- ◯ Moderately Important
- ◯ Not Important
- ◯ Unused - Potentially Important

Satisfaction Rating: Press Releases/Briefs

PR satisfaction: [ ]

Products and Services: Importance

- ◉ N/A
- ◯ Very Important
- ◯ Moderately Important
- ◯ Not Important
- ◯ Unused - Potentially Important

Satisfaction Rating: Products and Services

PS satisfaction: [ ]

Programs and Projects: Importance

- ◉ N/A
- ◯ Very Important
- ◯ Moderately Important
- ◯ Not Important
- ◯ Unused - Potentially Important

Satisfaction Rating: Programs and Projects

PP satisfaction: [ ]

Searchable Databases: Importance

- ◉ N/A
- ◯ Very Important
- ◯ Moderately Important
- ◯ Not Important
- ◯ Unused - Potentially Important

Satisfaction Rating: Searchable Databases

SD satisfaction: [ ]

Software: Importance

- ◉ N/A
- ◯ Very Important
- ◯ Moderately Important
- ◯ Not Important
- ◯ Unused - Potentially Important

Satisfaction Rating: Software

SW satisfaction:

Visuals: Importance

- (●) N/A
- ( ) Very Important
- ( ) Moderately Important
- ( ) Not Important
- ( ) Unused - Potentially Important

Satisfaction Rating: Visuals

Vis satisfaction:

When you provide us with this information, we can develop EREN to better serve your needs.

If you are ready to send your respones, please click on the "Send It!" button below. If you would like to start over with this form, click on the button below labeled "Clear and Start Over".

Send It!! Clear and Start Over

Thank you for your help! This completes the EREN survey.

Appendix B

Energy Efficiency and Renewable Energy Network
EREN
Customer Satisfaction Survey

Dear EREN User,

As a registered EREN user, you may be interested in our project to determine user's satisfaction with the information resources available through the Energy Efficiency and Renewable Energy Network (EREN). We need to know what you think. You have been chosen to be part of a special study group. Would you be willing to participate in a brief telephone survey? The interview would take about 15 minutes of your time. We would like to schedule a time, at your convenience, when we could call you to conduct the interview. A copy of the questionnaire will be sent to you, in advance of the telephone call, to guide your responses.

If you are willing to participate in the telephone interview, please reply via e-mail, to <aanderso@infointl.com> providing us with your phone number and a good time to call to arrange an appointment for the interview. Also, include your mailing address, or fax number, so that we may send the questionnaire to you.

PURPOSE OF THIS SURVEY

The Office of Energy Efficiency and Renewable Energy (EE) is eager to gather feedback from its customers about its performance. This information is useful in evaluating and improving its programs and services.

The purpose of this survey is to identify and define actual EREN users, to determine the kind and quality of services that users want and their level of satisfaction with existing services, to determine user's preferences in both the sources of service and the means of delivery, and to determine the value or benefits derived from the use of EREN. This information will help to establish measures of performance for the continuous quality improvement of EREN.

We appreciate your taking the time to complete this questionnaire. When you provide us with this information, we can become more familiar with your interests and can develop EREN to better serve your needs.

CONFIDENTIALITY

Response to this survey is voluntary, and all responses will be held in complete confidentiality. Responses will be collected and the respondent's name and other identifying information will be separated from his/her responses for reporting purposes.

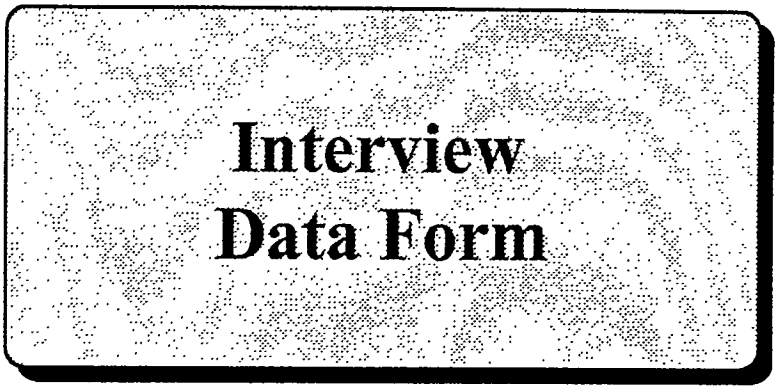
If you are not interested, please let us know as soon as possible, so that we can choose another participant for this study.

Thank you for your consideration.

David Henderson E-mail:david.henderson@ccmail.osti.gov
Department of Energy, Office of Telephone: (423) 576-1127
Scientific and Technical Information Fax: (423) 576-2865
P.O. Box 62, Oak Ridge, TN 37831

Alice Anderson E-mail: aanderso@infointl.com
Information International Associates,Inc. Telephone:(423)481-0388
P.O. Box 4219, Oak Ridge, TN 37831-4219 Fax: (423) 481-0390

Appendix C



CONTACT QUESTIONNAIRE MAILED INTERVIEW ID# _____ DATA INPUT

Appointment Date _____

Time _____ Eastern / Central / Mountain / Pacific
(Circle one)

Name _____

E-Mail address _____

Phone Number _(_____)_____

FAX _____(_____)_____

Home / Work Mailing Address _____

_____

_____

Preliminary Contact Via E-mail
Message Sent date _____

By _____

Reply received _____

Questionnaire Sent date _____

By _____

Interview Completed Date _____

By _____

EREN INTERVIEW DATA FORM 1 OCTOBER 1995
(AA)a:\erendata.frm

Appendix D

Fields for Database Survey Responses

Structure for database: G:\CSD\NORMA\EZEREN.DBF
Number of data records: 97
Date of last update : 03/28/96
Memo file block size : 64

Field	Field Name	Type	Width	Dec	Index
1	COUNTRY	Character	20		
2	STATE	Character	10		
3	CODE	Character	4		
4	Q1AFFIL	Character	1		
5	AFFIL_OTH	Memo	10		
6	Q2OCCUP	Character	20		
7	OCCUP_OTH	Memo	10		
8	Q3INTEREST	Character	12		
9	Q4AWARE	Character	1		
10	AWARE_OTH	Memo	10		
11	Q5STARTED	Date	8		
12	Q6BARRIERS	Character	9		
13	BARRIE_OTH	Memo	10		
14	Q7PDF	Character	1		
15	Q8MORE_PDF	Character	1		
16	PDF_COMM	Memo	10		
17	Q9BROWSER	Character	1		
18	BROWNAME	Character	10		
19	Q10USAGE	Character	1		
20	Q11PURPOSE	Character	13		
21	PURP_OTH	Memo	10		
22	Q12TIME_SP	Character	5		
23	MORE_TIME	Character	4		
24	Q13FIND_NE	Character	1		
25	LEARNED	Memo	10		
26	Q14REINFOR	Character	1		
27	Q15INITIAT	Character	11		
28	INIT_OTH	Memo	10		
29	Q16ERENFIR	Character	1		
30	SOURCE	Character	1		
31	SOURCEMEMO	Memo	10		
32	Q17SOURCE_	Character	5		
33	SOURC_DESC	Memo	10		
34	Q18TIME_SA	Character	5		
35	TIME_MIN	Numeric	2		
36	TIME_HOURS	Numeric	3		
37	TIME_DAYS	Numeric	2		
38	TIME_WKS	Numeric	3		
39	TIME_COMM	Memo	10		
40	Q19ACCURAT	Character	1		
41	Q20CURRENT	Character	1		
42	Q21BENEFIT	Character	1		
43	BENE_DESC	Memo	10		
44	ESTIMATE	Character	1		
45	ESTIM_HIGH	Numeric	20		
46	SAV_COMM	Memo	10		
47	Q22ENRGY_R	Character	1		
48	REDU_DESC	Memo	10		
49	ENRGY_SAV	Memo	10		
50	Q23SHARED	Character	1		
51	SHARED_DIR	Character	1		

52 SHARE_INDR Character 1
53 SHARE_MANY Memo 10
54 SHARE_COMM Memo 10
55 Q25BIB_INF Numeric 1
56 BIB_RATE Numeric 1
57 BIB_NOT Character 1
58 BIB_POTENT Character 1
59 BULL_BOARD Numeric 1
60 BULL_RATE Numeric 1
61 BULL_NOT Character 1
62 BULL_POTEN Character 1
63 CODES_REGS Numeric 1
64 CODES_RATE Numeric 1
65 CODES_NOT Character 1
66 CODE_POTEN Character 1
67 DATA_FILES Numeric 1
68 DATA_RATE Numeric 1
69 DATA_NOT Character 1
70 DATA_POTEN Character 1
71 DIRECTORY Numeric 1
72 DIREC_RATE Numeric 1
73 DIR_NOT Character 1
74 DIR_POTEN Character 1
75 DISC_GROUP Numeric 1
76 DISC_RATE Numeric 1
77 DISC_NOT Character 1
78 DISC_POTEN Character 1
79 ED_RESOURC Numeric 1
80 ED_RATE Numeric 1
81 ED_NOT Character 1
82 ED_POTEN Character 1
83 FTP Numeric 1
84 FTP_RATE Numeric 1
85 FTP_NOT Character 1
86 FTP_POTEN Character 1
87 FULL_TXT Numeric 1
88 FLTXT_RATE Numeric 1
89 FLTXT_NOT Character 1
90 FTXT_POTEN Character 1
91 GOPHERS Numeric 1
92 GOPH_RATE Numeric 1
93 GOPH_NOT Character 1
94 GOPH_POTEN Character 1
95 INTL_SITES Numeric 1
96 INTL_RATE Numeric 1
97 INTL_NOT Character 1
98 INTL_POTEN Character 1
99 NEWS_MAGS Numeric 1
100 NEWS_RATE Numeric 1
101 NEWS_NOT Character 1
102 NEWS_POTEN Character 1
103 PRES_BRIEF Numeric 1
104 PRESS_RATE Numeric 1
105 PRESS_NOT Character 1
106 PRES_POTEN Character 1
107 PRODUCTS Numeric 1
108 PROD_RATE Numeric 1

109	PROD_NOT	Character	1
110	PROD_POTEN	Character	1
111	PROG_PROJ	Numeric	1
112	PROGJ_RATE	Numeric	1
113	PROGJ_NOT	Character	1
114	PRGJ_POTEN	Character	1
115	DATABASES	Numeric	1
116	SDATA_RATE	Numeric	1
117	SDATA_NOT	Character	1
118	SDAT_POTEN	Character	1
119	SOFTWARE	Numeric	1
120	SOFT_RATE	Numeric	1
121	SOFT_NOT	Character	1
122	SOFT_POTEN	Character	1
123	OTHER_NAME	Character	30
124	OTHER	Numeric	1
125	OTHER_RATE	Numeric	1
126	OTHER_NOT	Character	1
127	OTH_POTEN	Character	1
128	Q25ADDED_I	Memo	10
129	Q26COMMENT	Memo	10
130	PHONESUV	Logical	1
** Total **			478

DATABASE FIELD NAME	FIELD NAME	FIELD TYPE	FIELD LENGTH	FIELD DESCRIPTION
COUNTRY	COUNTRY		20	Country of respondent's address
STATE	STATE		10	State where respondent lives/works
CODE	CODE #	C	4	Coded number, corresponding to respondent's name
AFFIL	AFFILIATION	C	1	1.one possible answer, [a,b,c,d,e,f,g,h]
AFFIL OTH	AFFILIATION - OTHER	M	Infinite	1. (i) describe other affiliation
OCCUP	OCCUPATION	C	20	2. one likely answer, many possible [a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s]
OCCUP OTH	OCCUPATION-OTHER	M	Infinite	2. (t) described occupation
INTEREST	INTEREST	C	12	3. multiple answers possible [a,b,c,d,e,f,g,h,i,j,k,l]
AWARE	AWARE	C	1	4. one possible answer, [a,b,c,d,e,f,g]
AWARE OTH	AWARE-OTHER	M	Infinite	4. (h) describe how became aware
STARTED	STARTED USE	C	8	5. month and year of start of use (07/01/95)
BARRIERS	BARRIERS	C	9	6. barriers to use, multiple answers possible [a,b,c,d,e,f,g,h,j]
BARRIE OTH	BARRIERS-OTHER	M	Infinite	6. (i) describe barriers to use
PDF	PDF	C	1	7. one possible answer [a,b,c]
MORE PDF	MORE PDF	C	1	8. one possible answer [a,b,c]
PDF COMM	COMMENTS ON PDF	M	Infinite	7-9. additional comments
BROWSER	BROWSER	C	1	9. one possible answer [a,b,c]
USAGE	USAGE	C	1	10.one possible answer [a,b,c,d]

DATABASE FIELD NAME	FIELD NAME	FIELD TYPE	FIELD LENGTH	FIELD DESCRIPTION
PURPOSES	PURPOSES	C	13	11. multiple answers possible [a,b,c,d,e,f,g,h,i,j,k,l,m]
PURP OTH	PURPOSES - OTHER	M	Infinite	11. (n) describe purposes
TIME SPENT	TIME SPENT	C	5	12. one possible answer [a,b,c,d,e]
MORE TIME	MORE TIME	C	4	12. (f) quantifies response 'e' above. Answers in number plus two character abbrev. (i.e., 3hr, or 12hr)
FIND NEW	FIND NEW	C	1	13. one possible answer [a,b,]
LEARNED	LEARNED	M	Infinite	13. (c) describe what was learned
REINFORCED	REINFORCED	C	1	14. one possible answer [a,b]
INITIATED	INITIATED	C	11	15. multiple answers possible [a,b,c,d,e,f,g,h,i,j,k]
INIT OTH	INITIATED - OTHER	M	Infinite	15. (l) describe what was initiated
ERENFIRST	EREN 1st	C	1	16. one possible answer [a,b]
SOURCE	SOURCE	C	1	If Question #16 is 'b' go on to this, one possible answer [a,b,c,d,e]
SOURCEMEMO	DESCRIPTION	M	Infinite	16. i)describe
SOURCE OTH	SOURCE - OTHER	C	5	17. multiple answers possible [a,b,c,d,e]
SOURC DESC	DESCRIPTION OF SOURCE	M	Infinite	17. f) name, or description of the source
TIME SAVED	TIME SAVED	C	5	18. one possible answer [a,b,d,f,h]
TIME MIN	TIME IN MINUTES	N	2	18. 'c'- if answer is "b)minutes" this tells how many (i.e., 45, or 60)

DATABASE FIELD NAME	FIELD NAME	FIELDTYPE	FIELD LENGTH	FIELD DESCRIPTION
TIME HOURS	TIME IN HOURS	N	3	18. 'e'- if answer is "d)hours" this tells how many
TIME DAYS	TIME IN DAYS	N	2	18. 'g' - if answer is "f)days" this tells how many
TIME WKS	TIME IN WEEKS	N	3	18. 'i' - if answer is "h)weeks" this tells how many
TIME COMM	COMMENTS ABOUT TIME	M	Infinite	18. any additional comments concerning the time.
ACCURATE	ACCURATE	C	1	19. one possible answer [a,b,c,d,e]
CURRENT	CURRENT	C	1	20. one possible answer [a,b,c,d,e]
BENEFIT	BENEFIT	C	1	21. one possible answer [a,b]
BENE DESC	BENEFITS DESCRIBED	M	Infinite	21. c)- if answer to above is "b)yes", describe benefits
ESTIMATE	SAVINGS ESTIMATED	C	1	21. -continued. Estimated savings from benefits one possible answer [d,e,f,g,h,i,j,k,l,m]
ESTIM HIGH	SAVINGS ESTIMATED AT >1MILLION.	N	20 (no decimal)	21. n) - Estimated savings of more than $1 million, if answer to above is "m -greater than $1million."
SAV COMM	COMMENTS ABOUT SAVINGS	M	Infinite	21. any additional comments
ENRGY REDU	ENERGY USE REDUCED	C	1	22. one possible answer [a,b,c]
REDU DESC	REDUCTION DESCRIBED	M	Infinite	22. d) - Describe how energy use reduced
ENRGY SAV	ENERGY SAVED	M	Infinite	22. e) - how much energy will be saved
SHARED	SHARED	C	1	23. one possible answer [a,b]
SHARED DIR	NUMBER DIRECTLY SHARING	C	1	23. one possible answer [c,d,e,f,g,h,i,j,k]

DATABASE FIELD NAME	FIELD NAME	FIELDTYPE	FIELD LENGTH	FIELD DESCRIPTION
SHARE INDR	NUMBER INDIRECTLY SHARING	C	1	23. , (optional) one possible answer [c,d,e,f,g,h,i,j,k]
SHARE MANY	MANY MORE SHARING	M	Infinite	23. l) - number greater than 25,000, or description
SHARE COMM	COMMENTS ABOUT SHARING THE INFO	M	Infinite	23. any additional comments about sharing the information
BIB INF	BIBLIOGRAPHIC INFORMATION-IMPORTANCE	N	1	24. a)-one possible answer: very important = 3, // moderately important = 2,// not important = 1.
BIB RATE	BIBLIOGRAPHIC INFORMATION-SATISFACTION	N	1	24. a) satisfaction rating, 1-5, 1=very dissatisfied -to-5=very satisfied
BIB NOT	BIBLIOGRAPHIC INFORMATION-NOT USED	C	1	24. a) if not used, enter an 'x' here
BIB POTENT	BIBLIOGRAPHIC INFORMATION-POTENTIAL	C	1	24. a) mark 'y' if it is potentially important
BULL BOARD	BULLETIN BOARDS-IMPORTANCE	N	1	24. b)-one possible answer: very important = 3, // moderately important = 2,// not important = 1.
BULL RATE	BULLETIN BOARDS-SATISFACTION	N	1	24. b) satisfaction rating, 1-5, 1=very dissatisfied -to-5=very satisfied
BULL NOT	BULLETIN BOARDS-NOT USED	C	1	24. b) if not used, enter an 'x' here
BULL POTEN	BULLETIN BOARDS-POTENTIAL	C	1	24. b) mark 'y' if it is potentially important

DATABASE FIELD NAME	FIELD NAME	FIELDTYPE	FIELD LENGTH	FIELD DESCRIPTION
CODES REGS	CODES AND REGULATIONS-IMPORTANCE	N	1	24. c)-one possible answer: very important = 3, // moderately important = 2,// not important = 1.
CODES RATE	CODES-SATISFACTION	N	1	24. c) satisfaction rating, 1-5, 1=very dissatisfied -to-5=very satisfied
CODES NOT	CODES- NOT USED	C	1	24. c) if not used, enter an 'x' here
CODE POTEN	CODES- POTENTIAL	C	1	24. c) mark 'y' if it is potentially important
DATA FILES	DATA FILES-IMPORTANCE	N	1	24. d)-one possible answer: very important = 3, // moderately important = 2,// not important = 1.
DATA RATE	DATA FILES - SATISFACTION	N	1	24. d) satisfaction rating, 1-5, 1=very dissatisfied -to-5=very satisfied
DATA NOT	DATA FILES -NOT USED	C	1	24. d) if not used, enter an 'x' here
DATA POTEN	DATA FILES - POTENTIAL	C	1	24. d) mark 'y' if it is potentially important
DIRECTORY	DIRECTORIES-IMPORTANCE	N	1	24. e)-one possible answer: very important = 3, // moderately important = 2,// not important = 1.
DIREC RATE	DIRECTORIES-SATISFACTION	N	1	Question # 24 e) satisfaction rating, 1-5, 1=very dissatisfied -to-5=very satisfied
DIR NOT	DIRECTORIES-NOT USED	C	1	24. e) if not used, enter an 'x' here
DIR POTEN	DIRECTORIES-POTENTIAL	C	1	24. e) mark 'y' if it is potentially important
DISC GROUP	DISCUSSION GROUPS-IMPORTANCE	N	1	24. f)-one possible answer: very important = 3, // moderately important = 2,// not important = 1.

DATABASE FIELD NAME	FIELD NAME	FIELD TYPE	FIELD LENGTH	FIELD DESCRIPTION
DISC RATE	DISCUSSION GROUPS-SATISFACTION	N	1	24. f) satisfaction rating, 1-5, 1=very dissatisfied -to-5=very satisfied
DISC NOT	DISCUSSION GROUPS-NOT USED	C	1	24. f) if not used, enter an 'x' here
DISC POTEN	DISCUSSION GROUPS-POTENTIAL	C	1	24. f) mark 'y' if it is potentially important
ED RESOURC	EDUCATIONAL RESOURCES-IMPORTANCE	N	1	24. g)-one possible answer: very important = 3, // moderately important = 2, // not important = 1.
ED RATE	EDUCATIONAL RESOURCES-SATISFACTION	N	1	Question # 24 g) satisfaction rating, 1-5, 1=very dissatisfied -to-5=very satisfied
ED NOT	EDUCATIONAL RESOURCES-NOT USED	C	1	24. g) if not used, enter an 'x' here
ED POTEN	EDUCATIONAL RESOURCES-POTENTIAL	C	1	24. g) mark 'y' if it is potentially important
FTP	FTP- IMPORTANCE	N	1	24. h)-one possible answer: very important = 3, // moderately important = 2,// not important = 1.
FTP RATE	FTP-SATISFACTION	N	1	24. h) satisfaction rating, 1-5, 1=very dissatisfied -to-5=very satisfied
FTP NOT	FTP-NOT USED	C	1	24. h) if not used, enter an 'x' here
FTP POTEN	FTP- POTENTIAL	C	1	24. h) mark 'y' if it is potentially important
FULL TXT	FULL TEXT-IMPORTANCE	N	1	24. i)-one possible answer: very important = 3, // moderately important = 2,// not important = 1.

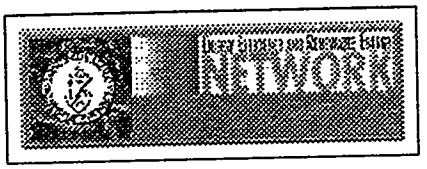
DATABASE FIELD NAME	FIELD NAME	FIELDTYPE	FIELD LENGTH	FIELD DESCRIPTION
FLTXT RATE	FULL TEXT-SATISFACTION	N	1	24. i) satisfaction rating, 1-5, 1=very dissatisfied -to-5=very satisfied
FLTXT NOT	FULL TEXT-NOT USED	C	1	24. i) if not used, enter an 'x' here
FTXT POTEN	FULL TEXT-POTENTIAL	C	1	24. i) mark 'y' if it is potentially important
GOPHERS	GOPHER SERVERS-IMPORTANCE	N	1	24. j)-one possible answer: very important = 3, // moderately important = 2,// not important = 1.
GOPH RATE	GOPHER SERVERS-SATISFACTION	N	1	24. j) satisfaction rating, 1-5, 1=very dissatisfied -to-5=very satisfied
GOPH NOT	GOPHER SERVERS-NOT USED	C	1	24. j) if not used, enter an 'x' here
GOPH POTEN	GOPH- POTENTIAL	C	1	24. j) mark 'y' if it is potentially important
INTL SITES	INTERNATIONAL SITES-IMPORTANCE	N	1	24. k)-one possible answer: very important = 3, // moderately important = 2,// not important = 1.
INTL RATE	INTERNATIONAL SITES-SATISFACTION	N	1	Question # 24 k) satisfaction rating, 1-5, 1=very dissatisfied -to-5=very satisfied
INTL NOT	INTERNATIONAL SITES-NOT USED	C	1	24. k) if not used, enter an 'x' here
INTL POTEN	INTERNATIONAL-POTENTIAL	C	1	24. k) mark 'y' if it is potentially important
NEWS MAGS	NEWSPAPERS AND MAGAZINES-IMPORTANCE	N	1	24. l)-one possible answer: very important = 3, // moderately important = 2,// not important = 1.
NEWS RATE	NEWSPAPERS AND MAGAZINES-SATISFACTION	N	1	Question # 24 l) satisfaction rating, 1-5, 1=very dissatisfied -to-5=very satisfied

DATABASE FIELD NAME	FIELD NAME	FIELDTYPE	FIELD LENGTH	FIELD DESCRIPTION
NEWS NOT	NEWSPAPERS AND MAGAZINES-NOT USED	C	1	24. l) if not used, enter an 'x' here
NEWS POTEN	NEWSPAPERS AND MAGAZINES-POTENTIAL	C	1	24. l) mark 'y' if it is potentially important
PRES BRIEF	PRESS RELEASES/BRIEFS-IMPORTANCE	N	1	24. m)-one possible answer: very important = 3, // moderately important = 2,// not important = 1.
PRESS RATE	PRESS RELEASES/BRIEFS-SATISFACTION	N	1	24. m) satisfaction rating, 1-5, 1=very dissatisfied -to-5=very satisfied
PRESS NOT	PRESS RELEASES/BRIEFS-NOT USED	C	1	24. m) if not used, enter an 'x' here
PRES POTEN	PRESS RELEASES/BRIEFS-POTENTIAL	C	1	24. m) mark 'y' if it is potentially important
PRODUCTS	PRODUCTS AND SERVICES-IMPORTANCE	N	1	24. n)-one possible answer: very important = 3, // moderately important = 2,// not important = 1.
PROD RATE	PRODUCTS AND SERVICES-SATISFACTION	N	1	Question # 24 n) satisfaction rating, 1-5, 1=very dissatisfied -to-5=very satisfied
PROD NOT	PRODUCTS AND SERVICES-NOT USED	C	1	24. n) if not used, enter an 'x' here
PROD POTEN	PRODUCTS AND SERVICES-POTENTIAL	C	1	24. n) mark 'y' if it is potentially important

DATABASE FIELD NAME	FIELD NAME	FIELD TYPE	FIELD LENGTH	FIELD DESCRIPTION
PROG PROJ	PROGRAMS AND PROJECTS-IMPORTANCE	N	1	24. o)-one possible answer: very important = 3, // moderately important = 2,// not important = 1.
PRGJ RATE	PROGRAMS AND PROJECTS-SATISFACTION	N	1	24. o) satisfaction rating, 1-5, 1=very dissatisfied -to-5=very satisfied
PROGJ NOT	PROGRAMS AND PROJECTS-NOT USED	C	1	24. o) if not used, enter an 'x' here
PROGJ POTEN	PROGRAMS AND PROJECTS-POTENTIAL	C	1	24. o) mark 'y' if it is potentially important
DATABASES	SEARCHABLE DATABASES-IMPORTANCE	N	1	24. p)-one possible answer: very important = 3, // moderately important = 2,// not important = 1.
DATA RATE	SEARCHABLE DATABASES-SATISFACTION	N	1	Question # 24 p) satisfaction rating, 1-5, 1=very dissatisfied -to-5=very satisfied
DATA NOT	SEARCHABLE DATBASES-NOT USED	C	1	24. p) if not used, enter an 'x' here
DATA POTEN	SEARCHABLE DATABASES-POTENTIAL	C	1	24. p) mark 'y' if it is potentially important
SOFTWARE	SOFTWARE-IMPORTANCE	N	1	24. q)-one possible answer: very important = 3, // moderately important = 2,// not important = 1.
SOFT RATE	SOFTWARE-SATISFACTION	N	1	24. q) satisfaction rating, 1-5, 1=very dissatisfied -to-5=very satisfied
SOFT NOT	SOFTWARE-NOT USED	C	1	24. q) if not used, enter an 'x' here

DATABASE FIELD NAME	FIELD NAME	FIELDTYPE	FIELD LENGTH	FIELD DESCRIPTION
SOFT POTEN	SOFTWARE-POTENTIAL	C	1	24. q) mark 'y' if it is potentially important
OTHER NAME	NAME THE 'OTHER' THAT WILL BE RATED	C	30	24. r) name or description of added 'other' resource
OTHER	OTHER-IMPORTANCE	N	1	24. r)-one possible answer: very important = 3, // moderately important = 2,// not important = 1.
OTHER RATE	OTHER-SATISFACTION	N	1	24. r) satisfaction rating, 1-5, 1=very dissatisfied -to-5=very satisfied
OTHER NOT	OTHER-NOT USED	C	1	24. r) if not used, enter an 'x' here
OTH POTEN	OTHER- POTENTIAL	C	1	24. r) mark 'y' if it is potentially important
ADDED INFO	INFORMATION	M	Infinite	Question #25, description of information that they'd like to see added to EREN
COMMENTS	OTHER COMMENTS	M	Infinite	Question #26, other comments

Appendix E



Registration Form

We appreciate your taking a few minutes to register with EREN. When you provide us with this information, we become more familiar with your interests and can develop EREN to better serve your needs. The information you provide is for use only by the developers of EREN.

To register through this page, your World Wide Web browser must support forms. If it does not, please, send email to webmaster@beijing.dis.anl.gov

Registered individuals will automatically be added to the EREN Users Group mailing list

---

NAME:

E-MAIL ADDRESS:

AFFILIATION:

TYPE OF AFFILIATION/ORGANIZATION

Academia

Consumer/Private Citizen

Commercial

Federal Government

State/Local Government

Utility

Other

AREAS OF INTEREST (You may select as many as apply)

Agriculture

Biomass

Buildings

Hydropower

Industrial

Ocean Energy

Photovoltaics

Solar

Transportation

Wind

All Energy Efficiency Sectors

All Renewable Energy Technologies

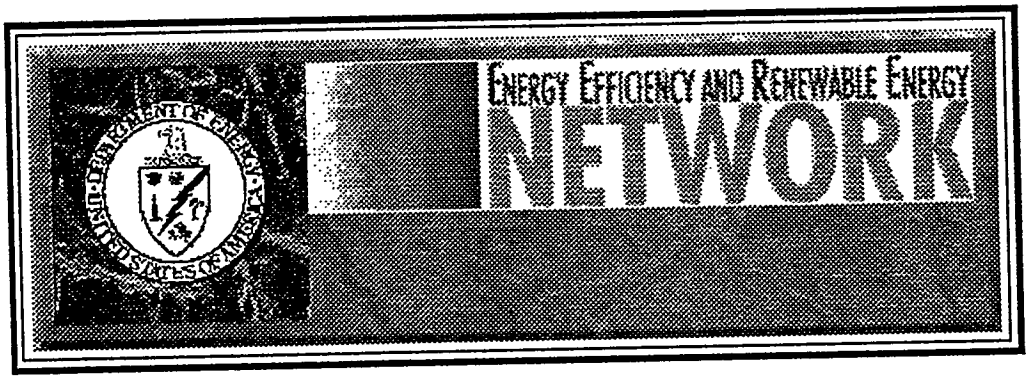
COMMENTS:

Please send any comments, questions, or suggestions to:
webmaster@beijing.dis.anl.gov

Appendix F

EREN Resource Pages

Contents



Welcome to the Department of Energy's (DOE's) Energy Efficiency and Renewable Energy Network (EREN), a World Wide Web site that locates and organizes qualitative information about renewable energy and energy efficient technologies. Find out What's new in EREN and join the EREN Users Group.

December 22nd is the first day of Winter!
Here are tips on conserving energy and saving money.

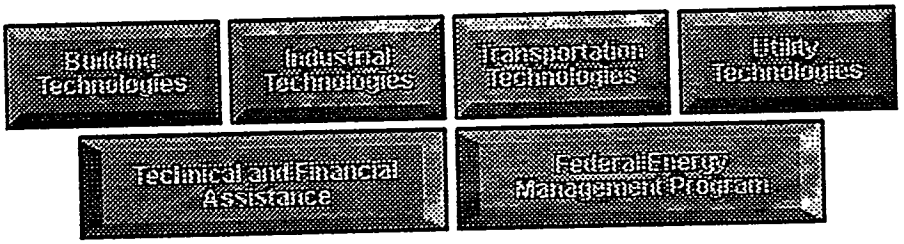
- Office of Energy Efficiency and Renewable Energy - Includes a welcome message from Christine Ervin, budget information, and information from the Office divisions.

- News, Events, and Hot Topics - Includes the latest announcements, hot topics, press releases, funding information, conference calendars, newsletters, and magazines.

- Finding Energy Information Resources - Provides access to EE/RE informational resources via broad subject divisions, type of resource, type of organization, by an alphabetical listing of sites, and by a keyword search system.

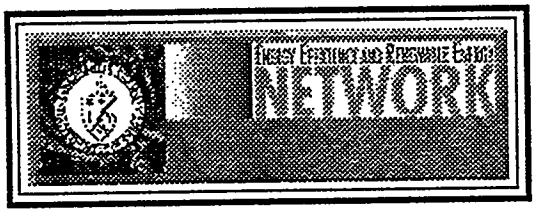
- Energy Efficiency and Renewable Energy Clearinghouse (EREC) - EREC offers information and assistance to a broad audience (consumers, educators and students, builders, businesses, government agencies, entrepreneurs) on a wide range of topics by providing publications, customized responses, and referrals to energy organizations.

The Office of Energy Efficiency and Renewable Energy is organized around the following units:



Disclaimer

Please send any comments, questions, or suggestions to:
webmaster.eren@nrel.gov



Registration Form

We appreciate your taking a few minutes to register with EREN. When you provide us with this information, we become more familiar with your interests and can develop EREN to better serve your needs. The information you provide is for use only by the developers of EREN.

To register through this page, your World Wide Web browser must support forms. If it does not, please, send email to webmaster.eren@nrel.gov

Registered individuals will automatically be added to the EREN Users Group mailing list

NAME:

COMPLETE E-MAIL ADDRESS:

AFFILIATION:

TYPE OF AFFILIATION/ORGANIZATION

Academia
Consumer/Private Citizen
Commercial
Federal Government
State/Local Government
Utility
Other

AREAS OF INTEREST (You may select as many as apply)

Agriculture
Biomass
Buildings
Hydropower
Industrial
Ocean Energy
Photovoltaics
Solar
Transportation
Wind
All Energy Efficiency Sectors
All Renewable Energy Technologies

COMMENTS:

[Help] [Internet/Other Links] [Keyword Search] [User Services]

Return to EREN Home Page 

Please send any comments, questions, or suggestions to:
webmaster.eren@nrel.gov

Energy Information Resources

- Information By Subject
- Information By Organization
- Information By Type of Resource
- Alphabetical Listing of All Sites
- Keyword Search of EREN

[Help] [Internet/Other Links] [Keyword Search] [User Services]

Return to EREN Home Page

Please send any comments, questions, or suggestions to:
webmaster.eren@nrel.gov

Information by Type of Resource

[Help] [Internet/Other Links] [Keyword Search] [User Services]

Return to EREN Home Page

Please send any comments, questions, or suggestions to:
webmaster.eren@nrel.gov

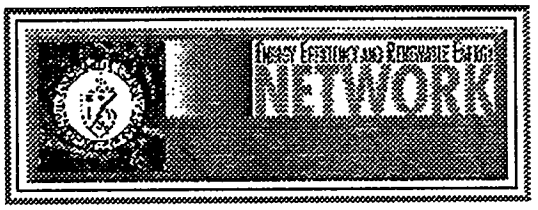
Codes and Regulations

- Alternative Fuel Transportation Program
- Comparison of Clean Air Act Amendments of 1990 and Energy Policy Act of 1992
- State Alternative Fuel Laws and Incentives

[Help] [Internet/Other Links] [Keyword Search] [User Services]

Return to EREN Home Page

Please send any comments, questions, or suggestions to:
webmaster.eren@nrel.gov



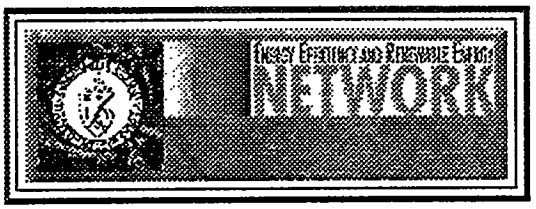
Datafiles

Federal Energy Management Program (FEMP)
Rutgers Office of Industrial Productivity and Energy Assessment WWW Server
Solar Radiation Data
Solar Radiation Data and Maps

[Help] [Internet/Other Links] [Keyword Search] [User Services]

Return to EREN Home Page

Please send any comments, questions, or suggestions to:
webmaster.eren@nrel.gov



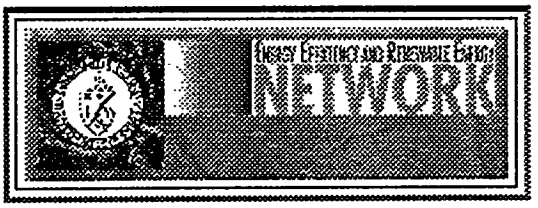
Directories

Directory of Energy-Related Graduate Programs in U.S. Universities
Energy Yellow Pages
New Energy Information Locator (NEIL)
Southeastern Building Community Directory

[Help] [Internet/Other Links] [Keyword Search] [User Services]

Return to EREN Home Page

Please send any comments, questions, or suggestions to:
webmaster.eren@nrel.gov



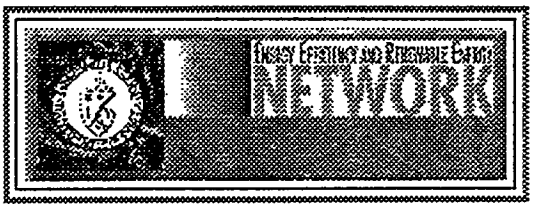
Education and Training

- California Energy Commission
- Directory of Energy-Related Graduate Programs in U.S. Universities
- Energy Conservation Enhancement Project
- Energy Education Resources
- Energy Quest
- EnergyNet Community Web
- 4-H Energy Education Resources Database
- Franklin Institute Science Museum Future Energy Exhibit
- Franklin Institute Science Museum Wind Study Unit
- Geothermal Education Office
- IASEE-L mailing list
- Renewable Energy Education Module
- Sun's Joules
- Sustainable Energy Guide: International Resources for Energy Efficiency and Renewable Energy

[Help] [Internet/Other Links] [Keyword Search] [User Services]

Return to EREN Home Page

Please send any comments, questions, or suggestions to:
webmaster.eren@nrel.gov



FTP Servers

Energy and Climate Information Exchange (ECIX)
Sunsite FTP Server Alternative Energy Information

[Help] [Internet/Other Links] [Keyword Search] [User Services]

Return to EREN Home Page

Please send any comments, questions, or suggestions to:
webmaster.eren@nrel.gov

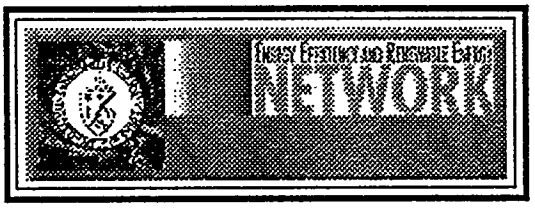
Full-Text Publications

Biofuels Reports and Project Briefs
Compendium of Solar Dish/Stirling Technology
Conservation and Renewable Energy Database - Salt Lake City
Directory of Energy-Related Graduate Programs in U.S. Universities
Electric and Hybrid Vehicles Program
Energy and Climate Information Exchange (ECIX)
Energy Education Resources
Energy Efficiency and Renewable Energy Clearinghouse (EREC) Fact Sheets
Energy Efficient Rehabilitation of Multifamily Buildings in the Midwest
Energy Partnerships for a Strong Economy (Virtual Green Room)
Energy Solutions for Cities and Counties Fact Sheets
Energy: Useful Facts - October 1994
Greenhouse Gas Miser Handbook
Guides to Energy Management
House of Straw: Straw Bale Construction Comes of Age
NICE3
Profiles in Renewable Energy: Case Studies of Successful Utility-Sector Projects
Rebuilding Your Flooded Home
Review Report of the Regional Biomass Energy Program State Grant Projects
RSPEC: Reduce Swimming Pool Energy Costs
Solar Cooking Archive
Sunsite FTP Server Alternative Energy Information
Sustainable Energy Guide: International Resources for Energy Efficiency and Renewable Energy

[Help] [Internet/Other Links] [Keyword Search] [User Services]

Return to EREN Home Page

Please send any comments, questions, or suggestions to:
webmaster.eren@nrel.gov



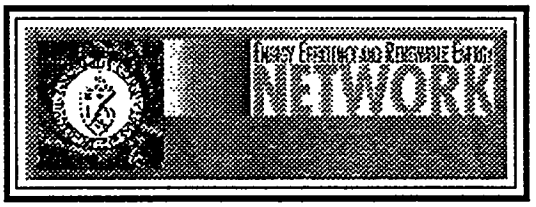
Gopher Servers

EcoGopher
Federal Energy Management Program (FEMP)
4-H Energy Education Resources Database
Library of Congress Information Center (LOCIS)
NOAA National Environmental Data Referral Service (NEDRES)

[Help] [Internet/Other Links] [Keyword Search] [User Services]

Return to EREN Home Page

Please send any comments, questions, or suggestions to:
webmaster.eren@nrel.gov



International Sites

Asia-RE mailing list
Center for the Analysis and Dissemination of Demonstrated Energy Technologies - CADDET Renewable Energy
Centre for Alternative Transportation Fuels Database
Cranfield University Wind Turbine Research Group
Energy Efficient Housing in Canada
Greenhouse Gas Miser Handbook
Greenhouse Gas Technology Information Exchange (GREENTIE)
Guides to Energy Management
IASEE-L mailing list
International District Energy Association
International Energy Agency Heat Pump Centre
International Energy Agency Solar Heating and Cooling Programme
International Geothermal Association
International Ground Source Heat Pump Association
International Solar Energy Society
L-Enews mailing list
Laboratoire d'Énergie Solaire et de Physique du Bâtiment
Power Smart
Renewable Energy and Sustainable Energy Systems in Canada
Renewable Energy Information Network
Retro-Vision
Risoe National Laboratory Meteorology and Wind Energy Department
Rutherford Appleton Laboratory Energy Research Unit
Source (IGSHPA Online Newsletter)
Summit of the Americas
Sustainable Energy Guide: International Resources for Energy Efficiency and Renewable Energy
Technical University Berlin Windturbines
UK Solar Energy Society
University College Dublin Energy Research Group
University of New South Wales Centre for Photovoltaic Devices and Systems
Wind Energy Information for Denmark

[Help] [Internet/Other Links] [Keyword Search] [User Services]

Return to EREN Home Page

Please send any comments, questions, or suggestions to:
webmaster.eren@nrel.gov

DOE Press Releases

12/19/95 - Joint Implementation Projects Chosen; U.S. Companies Help Combat Global Climate Change

12/14/95 - DOE Selects Blackfeet National As Administrative Financial Institution

12/12/95 - Atlanta First To Implement Energy Efficiency Initiative for Public Housing Units

12/09/95 - Statement of Hazel O'Leary, U.S. Secretary of Energy

12/07/95 - U.S.-South Africa Energy Collaboration Produces Training and New Jobs

12/07/95 - Customer Focus Gets Results, Streamlines Services at Energy Department

12/01/95 - DOE Sells Excess Gold and Silver To Reduce Federal Deficit

11/28/95 - More American Jobs, Greater Energy Security on Horizon Following Enactment of Major Energy Bill

11/20/95 - Energy Department Takes Big Step To Privatize Hanford Tank Waste Treatment

11/17/95 - Economic, Environmental Benefits of Natural Gas Touted at Texas-Mexico Border Energy Meeting

11/07/95 - Congressional Budget Reductions Impact Civilian Radioactive Waste Management Program

11/02/95 - Clinton Administration Works with U.S. Farmers To Increase Competitive Edge

10/31/95 - Hemispheric Energy Meetings Result in Historic Signings

10/31/95 - Breakthrough "Superconducting" Cable To Be Developed Under New Agreement

10/30/95 - New Contractor Announced For Nevada Test Site Secretary Outlines Plans for Site

10/25/95 - Regional Cooperation on Energy To Be Charted at Washington Symposium

10/24/95 - Successful Horizontal Well Test in Michigan Boosts Prospects for Increased Oil Production

10/24/95 - Eight DOE Organizations Honored with Energy Quality Awards

10/19/95 - Energy, Trade Agencies Host Romanian President in Talks on Opportunities in Oil & Gas Industry

10/19/95 - Genetic Sequence of a Bacterium Decoded

10/16/95 - Methanol-Producing Clean Coal Technology Project Moves into Construction in Kingsport, Tennessee

10/10/95 - Hispanic Institutions To Receive Grants at DOE's National Hispanic Month Celebration

10/10/95 - Energy Department Favors Dual-Track Strategy To Meet National Security Requirements for Tritium

10/11/95 - Nobel Prize Winners Funded by DOE

10/12/95 - Energy Secretary Announces Rebuild America Grant To Support Boston Energy Efficiency Partnership

10/12/95 - Energy Secretary Names Joan Rohlfing as Director of National Security and Nonproliferation

9/28/95 - DOE Achieves Balance BPA Contracts -- Northwest Ratepayers Are the Winners

9/28/95 - DOE and BPA Call for Regional Review

9/26/95 - Simpson Named Associate Deputy Secretary Key Leader on Energy Resources

9/25/95 - President Announces Plan for National Laboratories Three Weapons Labs Seen as "Essential" for Nuclear Security

9/20/95 - New Wind Turbines and Technology Projects To Foster Clean, Competitively Prices Energy in Eleven States

9/19/95 - Energy Department Sweeps the Competition at 1995 R&D 100 Awards

9/19/95 - DOE Grants To Assist Tribes in Developing Renewable Energy and Energy Efficiency Projects

9/15/95 - Center Linking U.S., Russian Oil and Gas Industries Opens Its Doors in Western Siberia

9/13/95 - Energy Cooperation, Clean Technologies Are Goals of U.S. - Czech Meetings

9/13/95 - Energy Secretary O'Leary To Lead U.S. Delegration to 1995 IAEA Talks, Speak on Nuclear Era

9/11/95 - Energy Department Begins Research To Identify Best Source of Medical Isotopes for Promising Cancer Therapy

9/08/95 - DOE Helps Hispanic Students Tune In To Science and Technology

9/08/95 - The Department of Energy will participate in a signing ceremony highlighting "Environmental Excellence in Government."

9/07/95 - Energy Department Set To Build World's Most Powerful Computer

9/07/95 - DOE Labs Win New Technology's "Nobel"

9/06/95 - National Conference Focuses on Electric Motors

9/01/95 - Cooperation in Energy Technologies Up for Discussion in United States-Portugal Conference

8/22/95 - Forth Annual Clean Coal Conference To Highlight Global Opportunity theme

8/18/95 - DOE Provides Grant To Support Home Energy Efficiency in Virginia

8/17/95 - Energy Department Release Final List of Human Radiation Experiments

8/16/95 - Charles Curtis Sworn in as Deputy Secretary of Energy

8/16/95 - Back to School - 1

8/11/95 - Statement from Secretary Hazel R. O'Leary on President Clinton's Announcement of a Continued U.S. Nuclear Test Ban

8/09/95 - DOE Adds New Fossil Energy Projects to Historically Black University Program

8/09/95 - DOE Adopts Reforms To Protect Whistleblowers

8/07/95 - U.S. Department of Energy Seeks Comment on Scope of Environmental Impact Statement for a Repository at Yucca Mountain, Nevada

8/04/95 - Energy Department Confirms Competition for Hanford Management Contract

8/04/95 - Clinton Sends National Energy Policy Report to Congress: "Clean and Secure Energy for a Competitive Economy"

8/03/95 - Energy Secretary Provides Details on Workforce Reductions: Introduces Re-Engineering Initiative

8/02/95 - Energy Department To Eliminate or Reform 75 Percent of Rules and Regulations

8/01/95 - Linke Appointed Alaska Power Administration

7/26/95 - DOE Seeks Best-In-Class Contractor Team for Savannah River Site

7/26/95 - Michael Deihl Appointed Southwestern Power Administrator

7/17/95 - DOE Pens Agreement with Japan To Cooperate on Nuclear Research and Share Nuclear Energy Expertise

7/11/95 - Under Secretary of Energy Curtis To Be Designated Acting Deputy Secretary

7/10/95 - Deputy Energy Secretary Bill White Resigns

6/21/95 - Former Hill Staffer Dirk Forrister Picked for Congressional Assistant Secretary at DOE

6/20/95 - DOE, OSHA Move Toward External Regulation of Health and Safety at Nuclear Facilities

6/20/95 - DOE Grant Assists Indiana Residents in Purchasing Homes and Lowering Energy Costs

6/15/95 - Mission to Mexico

6/13/95 - Independent Task Force Says Energy R&D Essential to U.S. Economy

6/8/95 - U. S. Department of Energy Wins 1995 Federal Environmental Quality Award

6/7/95 - Nuclear Stockpile Conversion Takes New Step

6/6/95 - Secretary O'Leary Urges Greenhouse Gas Reductions in Costa Rica Workshop

6/1/95 - O'Leary Approves Management Plan for DOE and Navy Spent Nuclear Fuel

5/25/95 - Statement of Thomas P. Grumbly, Assistant Secretary of Energy for Environmental Management, In Response to the Action by the National Security Committee

5/19/95 - State Grants Form Energy Partnerships and Save Millions in Energy Costs

5/3/95 - DOE Alignment Delivers $1.7 Billion to Taxpayers - Includes Office Closings, Employee Reductions, Privatization, Asset Sales

5/1/95 - DOE To Announce Strategic Alignment and Downsizing

4/27/95 - Revised IRS Ruling Helps Utilities Reduce Costs and Pollution, Says Energy Secretary

4/25/95 - All-Indian Team To Compete in National Science Bowl

4/20/95 - Spent Nuclear Fuel Storage Proposed in Idaho, South Carolina and Washington

4/19/95 - Regional Electric Power Conference in Romania Nets Opportunities for U. S. Investment, Cooperation

4/17/95 - Survey Shows DOE Gaining in Public Trust and Confidence

4/13/95 - Deputy Energy Secretary Bill White to Boost U. S. Business Interests in Caspian

4/12/95 - DOE and State Department Release Draft Environmental Impact Statement on Foreign Spent Nuclear Fuel

4/12/95 - U. S. Consumer and Industry Saving Billions From Energy Department Research

4/10/95 - Human Radiation Experiment Records Available on Internet

4/04/95 - $3.5 Billion Contract Awarded to Kaiser-Hill Company for Cleanup of Rocky Flats

4/03/95 - Energy Department Previews New Cleanup Costs and Plans Studies Designed To Inform Environmental Decisionmaking

4/03/95 - Trade and Investment To Accent Deputy Energy Secretary's Trip to Venezuela

3/31/95 - Unprecedented Collaboration Between U.S. and Russia Enables Remote Monitoring of Nuclear Materials

3/30/95 - Report To Be Released on Cost of Weapons Site Cleanup

3/27/95 - DOE Takes Alternative Fuel Vehicles to the Streets of Los Angeles

3/24/95 - DOE Proposes Rule for State and Local Incentives Programs

3/16/95 - DOE Begins Review of Classification Policies

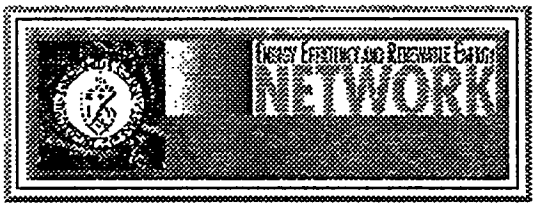
3/2/95 - E. O. Lawrence Awards Hail Advances in Seven Fields of Science

3/1/95 - DOE Endorses Call for Exemption to ANS Export Ban

2/24/95 - Cuts Strike at Heart of Critical Programs - DOE Responds to Proposed Rescissions to '95 Budget

---

DOE News



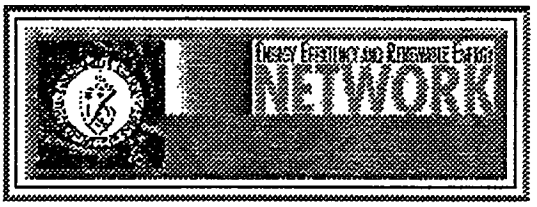
Products and Services

AAA Solar Service and Supply
Ananda Power Technologies
Electric Power Research Institute (EPRI)
Energy Federation, Inc.
Energy Information Administration (EIA)
Energy Source Builder Newsletter
Energy Star Office Products
Energy Yellow Pages
HOME TEAM (HOME Technology Education and Marketing)
inter.Light
Iris Communications, Inc.
Jade Mountain, Inc.
Lighting Resource
Power Smart
Residential Energy Star Programs
Siemens Solar Industries
Solar Energy Industries Association Members Database
Source for Renewable Energy
World Power Technologies

[Help] [Internet/Other Links] [Keyword Search] [User Services]

Return to EREN Home Page

Please send any comments, questions, or suggestions to:
webmaster.eren@nrel.gov



Programs and Projects

Association of State Energy Research and Technology Transfer Institutions (ASERTTI)
California Institute for Energy Efficiency
Center for the Analysis and Dissemination of Demonstrated Energy Technologies - CADDET Register
Conservation and Renewable Energy Database - Salt Lake City
Electric Power Research Institute (EPRI)
FEDIX
Industrial Projects Locator
Power Smart
Profiles in Renewable Energy: Case Studies of Successful Utility-Sector Projects
Review Report of the Regional Biomass Energy Program State Grant Projects
Sustainable Energy Guide: International Resources for Energy Efficiency and Renewable Energy

[Help] [Internet/Other Links] [Keyword Search] [User Services]

Return to EREN Home Page

Please send any comments, questions, or suggestions to:
webmaster.eren@nrel.gov

Searchable Databases

Alternative Fuels Refueling Sites
Biofuels Data Base Search
Buildings Energy Research Bibliography
Center for the Analysis and Dissemination of Demonstrated Energy Technologies - CADDET Register
Centre for Alternative Transportation Fuels Database
Conservation and Renewable Energy Database - Salt Lake City
EcoGopher
Electric Power Research Institute (EPRI)
Energy Efficient Rehabilitation of Multifamily Buildings in the Midwest
Energy Science and Technology Database (EDB)
Energy Star Office Products
FEDIX
4-H Energy Education Resources Database
Fuels Utilization Reports and Citations Database Search
Home Energy Online
inter.Light
Library of Congress Information System (LOCIS)
NASA RECON Database
NOAA National Environmental Data Referral Service (NEDRES)
New Energy Information Locator (NEIL)
NREL Publications Data Base
Photographic Information eXchange (PIX)
Solar Radiation Data
Southeastern Building Community Directory

[Help] [Internet/Other Links] [Keyword Search] [User Services]

Return to EREN Home Page

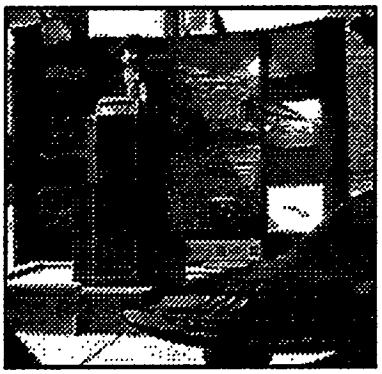
Please send any comments, questions, or suggestions to:
webmaster.eren@nrel.gov

U.S. Department of Energy

The Photographic Information eXchange (PIX) collection consists of photographs of renewable energy and energy efficiency technologies. The collection was developed and is maintained for the Department of Energy (DOE) at the National Renewable Energy Laboratory (NREL) in Golden, Colorado.

New!

Department of Energy Secretary Hazel O'Leary announced plans for Sunrayce 97 at a ceremony, October 10, 1995 in Washington, D.C. On hand were 3 cars from Sunrayce 95; George Washington University, MIT and the University of Maryland. This ceremony was part of the October Energy Awareness Month scheduled activities.


1566.GIF


1562.GIF

These are just a few of the images that have been recently added into [redacted].

[redacted]

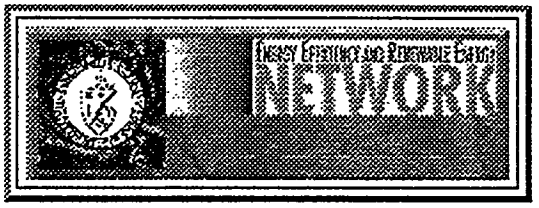
[redacted]

[redacted]

[redacted]


If you see this symbol, it means that reuse of the image is restricted. Please contact the person listed for usage instructions.

[DOE] [EREN] [NREL]



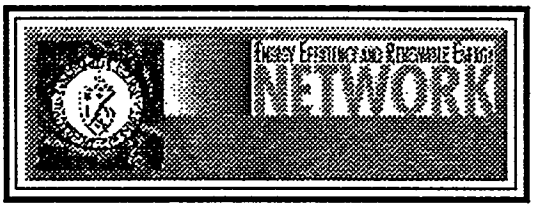
Software

Building Load Analysis and System Thermodynamics (BLAST) Worldwide
Energy Ideas Clearinghouse
Laboratoire d'Énergie Solaire et de Physique du Bâtiment
Radiance WWW Server
Texas A&M University Energy Systems Laboratory
University of Wisconsin-Madison Solar Energy Laboratory

[Help] [Internet/Other Links] [Keyword Search] [User Services]

Return to EREN Home Page

Please send any comments, questions, or suggestions to:
webmaster.eren@nrel.gov



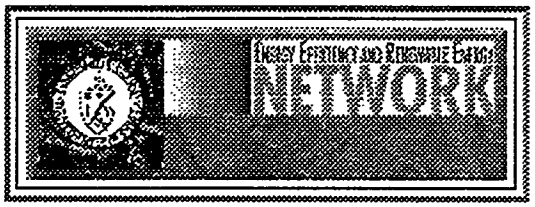
Disclaimer

This system is made available by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of originators expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

[Help] [Internet/Other Links] [Keyword Search] [User Services]

Return to EREN Home Page

Please send any comments, questions, or suggestions to:
webmaster.eren@nrel.gov



User Feedback Survey

Please help us to improve the Energy Efficiency and Renewable Energy Network by giving us your comments and suggestions.

Personal Information

Name:

E-mail:

Institution:

Suggestion Area:

Best Features:

Features you would like to see added:

Additional information or data sources you could suggest

Data Usefulness, General Comments/Suggestions:

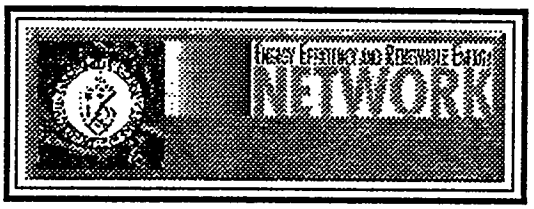
[Help] [Internet/Other Links] [Keyword Search] [User Services]

Return to EREN Home Page

Appendix G

Resource Pages for Comparison to EREN's

Contents



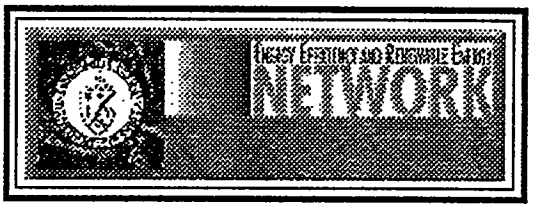
Searchable Databases

Alternative Fuels Refueling Sites
Biofuels Data Base Search
Buildings Energy Research Bibliography
Center for the Analysis and Dissemination of Demonstrated Energy Technologies - CADDET Register
Centre for Alternative Transportation Fuels Database
Conservation and Renewable Energy Database - Salt Lake City
EcoGopher
Electric Power Research Institute (EPRI)
Energy Efficient Rehabilitation of Multifamily Buildings in the Midwest
Energy Science and Technology Database (EDB)
Energy Star Office Products
FEDIX
4-H Energy Education Resources Database
Fuels Utilization Reports and Citations Database Search
Home Energy Online
inter.Light
Library of Congress Information System (LOCIS)
NASA RECON Database
NOAA National Environmental Data Referral Service (NEDRES)
New Energy Information Locator (NEIL)
NREL Publications Data Base
Photographic Information eXchange (PIX)
Solar Radiation Data
Southeastern Building Community Directory

[Help] [Internet/Other Links] [Keyword Search] [User Services]

Return to EREN Home Page

Please send any comments, questions, or suggestions to:
webmaster.eren@nrel.gov



Searchable Databases

Alternative Fuels Refueling Sites
Biofuels Data Base Search
Buildings Energy Research Bibliography
Center for the Analysis and Dissemination of Demonstrated Energy Technologies - CADDET Register
Centre for Alternative Transportation Fuels Database
Conservation and Renewable Energy Database - Salt Lake City
EcoGopher
Electric Power Research Institute (EPRI)
Energy Efficient Rehabilitation of Multifamily Buildings in the Midwest
Energy Science and Technology Database (EDB)
Energy Star Office Products
FEDIX
4-H Energy Education Resources Database
Fuels Utilization Reports and Citations Database Search
Home Energy Online
inter.Light
Library of Congress Information System (LOCIS)
NASA RECON Database
NOAA National Environmental Data Referral Service (NEDRES)
New Energy Information Locator (NEIL)
NREL Publications Data Base
Photographic Information eXchange (PIX)
Solar Radiation Data
Southeastern Building Community Directory

[Help] [Internet/Other Links] [Keyword Search] [User Services]

Return to EREN Home Page

Please send any comments, questions, or suggestions to:
webmaster.eren@nrel.gov

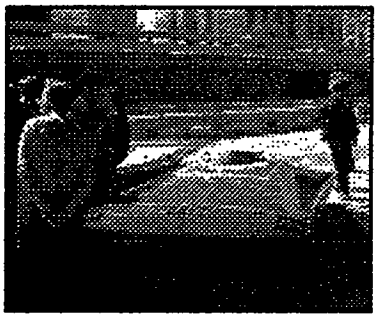
U.S. Department of Energy

The Photographic Information eXchange (PIX) collection consists of photographs of renewable energy and energy efficiency technologies. The collection was developed and is maintained for the Department of Energy (DOE) at the National Renewable Energy Laboratory (NREL) in Golden, Colorado.

New!

Department of Energy Secretary Hazel O'Leary announced plans for Sunrayce 97 at a ceremony, October 10, 1995 in Washington, D.C. On hand were 3 cars from Sunrayce 95; George Washington University, MIT and the University of Maryland. This ceremony was part of the October Energy Awareness Month scheduled activities.


1566.GIF


1562.GIF

These are just a few of the images that have been recently added into [redacted].

[redacted]

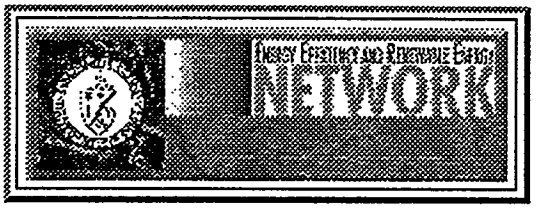
[redacted]

[redacted]

[redacted]

If you see this symbol, it means that reuse of the image is restricted. Please contact the person listed for usage instructions.

[DOE] [EREN] [NREL]



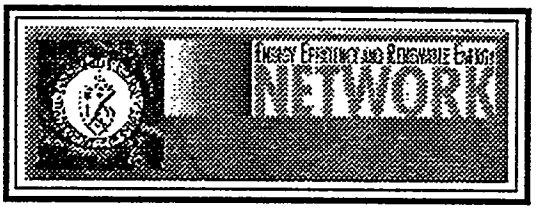
Software

Building Load Analysis and System Thermodynamics (BLAST) Worldwide
Energy Ideas Clearinghouse
Laboratoire d'Énergie Solaire et de Physique du Bâtiment
Radiance WWW Server
Texas A&M University Energy Systems Laboratory
University of Wisconsin-Madison Solar Energy Laboratory

[Help] [Internet/Other Links] [Keyword Search] [User Services]

Return to EREN Home Page

Please send any comments, questions, or suggestions to:
webmaster.eren@nrel.gov



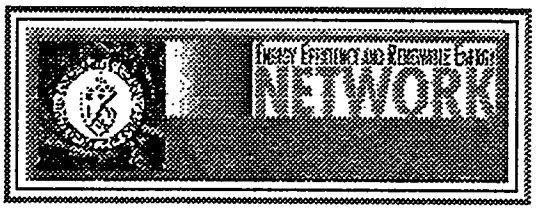
Disclaimer

This system is made available by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of originators expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

[Help] [Internet/Other Links] [Keyword Search] [User Services]

Return to EREN Home Page

Please send any comments, questions, or suggestions to:
webmaster.eren@nrel.gov



User Feedback Survey

Please help us to improve the Energy Efficiency and Renewable Energy Network by giving us your comments and suggestions.

Personal Information

Name:

E-mail:

Institution:

Suggestion Area:

Best Features:

Features you would like to see added:

Additional information or data sources you could suggest

Data Usefulness, General Comments/Suggestions:

[Help] [Internet/Other Links] [Keyword Search] [User Services]

Return to EREN Home Page

the Source Renewable Energy

Welcome to the Source for Renewable Energy

The Source for Renewable Energy is a browsable directory of over 1300 renewable energy related businesses. The Source helps consumers locate renewable energy related businesses by categorizing companies by geographic location, by business type and by product type. Whether you are looking for electric vehicles in Arizona, renewable energy businesses in Mexico, or wind generator manufacturers in Minnesota, the Source makes it easy to find them.

Renewable energy related businesses benefit from the thousands of people who visit the Source each month (over 60,000 last month). If your business is not listed, use our free listing submission form.

Renewable Energy Businesses

Locate renewable energy related businesses who manufacture, distribute or service renewable energy products by geographic location, by business type, and by product type.

What's New

Last update on December 30, 1995. NEW **Special Discount:** Save 20% on solar chargers for laptop PC's, Powerbooks, and Newton PDA's. Added new section on renewable energy related organizations. Added a new section on solar heating of homes.

For More Information

Look here for more information about:

- Listing your renewable energy related business in the Source. (Basic listing is free)
- Momentum Transfer Technology
- Server Statistics - find out how many people are visiting these pages.

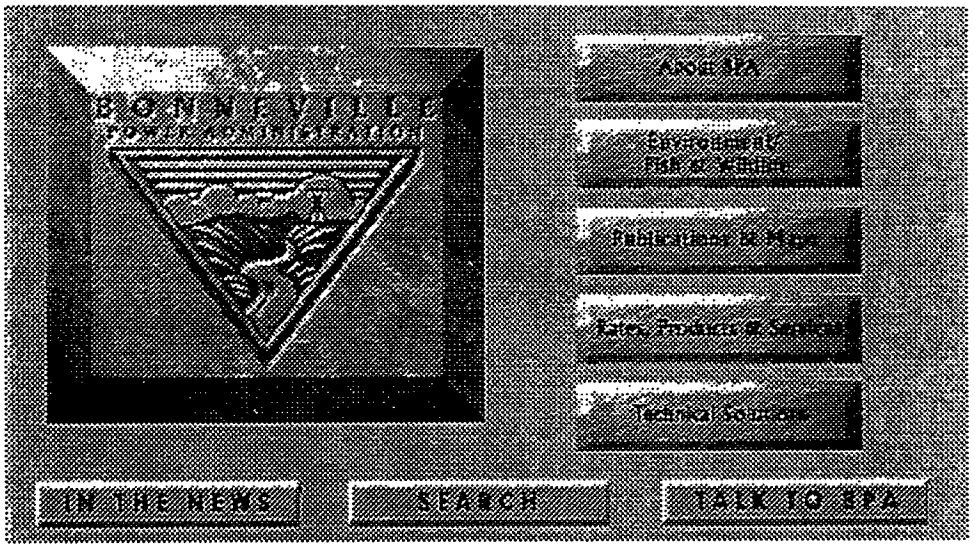




Begin New Search **What's New** **Spotlight** **Submit Business Listing** **Special Offers**

Automagically created by an AppleScript Web Spinning Robot on Saturday, December 16, 1995 5:30:57 PM
Send comments about this page to webmaster@mtt.com

Bonneville Power Administration



Disclaimer: This is an official US government information system. All conditions, restrictions and disclaimers apply.

Select this for non-graphical links.

Welcome to the BPA Home Page!

Select the topic of your choice for more information:

- ☐ What's New
- ☐ Questions About the WWW?
- ☐ The BPA Organization
- ☐ Common BPA Points of Interest
- ☐ Government Information Locator Service at BPA NEW!
- ☐ Search Tools
- ☐ HTML Conversion and Editing Tools
- ☐ U.S. Government

Test Your Connection Speed

Select this to download a 1MB text file to test the speed of your connection. Transfer times are limited by the slowest link in the network path between your computer and the destination computer in addition to the speed of the computers themselves.

Optimal 1MB transfer times for common link speeds follow. **Please note that (1) network links are shared resources and (2) your computer may not accept data at network rate, so your actual transfer rate will probably average 30% less than optimal during business hours.**

Kbps	Type	Time
10240.0	10baseT	00:01
1544.0	T1	00:07
115.0	modem*	01:32
57.6	modem*	03:06
28.8	modem	06:04
14.4	modem	12:09
9.6	modem	18:13
2.4	modem	72:50

(*) Most modems can deliver these rates only on non-compressed data [GIFs and ZIPs are compressed]. Compressed data is transmitted at the base rate of 28.8 or 14.4 depending on the modem.

Alternately, select this to download a 110K image file to test the speed of your connection and the speed of your image viewer. The time between transfer completion and display of image will vary depending on the speed of your system.

If you have questions or comments about the content of documents provided by this server, please contact Ken Kane, <krkane@bpa.gov>. For other issues, contact Larry Stewart, <webmaster@bpa.gov>.

Last updated 1995/12/07 by Max Bell, <mbell@bpa.gov>.

EPRI Electric Power Research Institute Databases

Search EPRI Databases

This section lets you search EPRI databases below using the Z-39.50 protocol (WAIS).

EPRI Products
(Examples: Heat Pumps, EMF)

EPRI Publications
(Examples: TR-102323, CS-5501, 9506* or waste heat)

EPRI Projects
(Examples: Hydroelectric, Air Quality)

EPRI Technical Expertise Directory
(Examples: John, Photovoltaics)

For information about ordering EPRI material, contact:

The EPRI Distribution Center
207 Coggins Drive
Pleasant Hill, CA 94523
(510) 934-4212

Home, Information, Find, Help

Software Developer: *Rajesh Bhatawadekar, prba001@prod1.epri.com*

EPRI Electric Power Research Institute

Leadership in Electrification through Global Collaboration

The mission of the Electric Power Research Institute (EPRI) is to discover, develop, and deliver high value technological advances through networking and partnership with the electricity industry.

- The EPRI Journal NEW
- Executive Newsline
- Event Calendar
- EPRI's 1995 RD&D Plan
- EPRI Databases

Business Groups

- Strategic Development Activities
- Customer Systems Group
- Environment Group
- Generation Group
- Power Delivery Group
- Nuclear Power Group

What's New	Search	Energy Links
About EPRI	Membership	Feedback

The Source for Publications Expertise

Our Editorial & Production Services Department has a new art director. For more information, read our news release.

Welcome to the EEI home page. Here you'll find out how to make editorial and publishing projects letter **and** picture perfect!

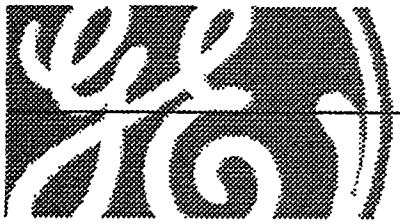
We're a collection of writers, proofreaders, editors, designers, and publishing specialists who love what we do. We provide editorial and production services to corporations, associations, nonprofits, and government agencies. We've helped thousands of clients since 1972.

We write and publish books on grammar and good proofreading and editing techniques. We also publish *The Editorial Eye*, an award-winning newsletter for everyone who believes in editorial excellence.

On top of that, we offer training in editorial skills, in computer programs for graphic design and page layout, and in project management--so people can do what we do!

We do it right--even when it's right away!

66 Canal Center Plaza, Suite 200, Alexandria, Virginia 22314-5507, USA
Phone +1 703 683 0683; fax +1 703 683 4915
http://www.eei-alex.com/
Last modified 12 Dec 1995 <webmaster@eei-alex.com>



GE WWW Server

General Electric Company is a diversified technology, manufacturing and services company operating on a worldwide basis

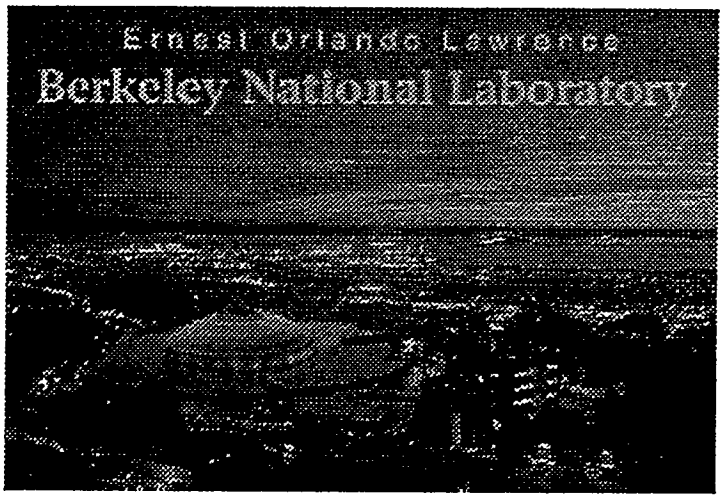
- What's New on the WWW
- GE In The News
- GE Products and Services Index
- GE at a Glance
- GE Worldwide Operations
- GE Company Highlights
- General Electric Company 1994 Annual Report
- GE One World Jingle (715KB)
- GE One World Video (2.6MB)

Businesses:

- GE Aircraft Engines
- GE Capital Services
- GE Electrical Distribution and Control
- GE Information Services, Inc.
- GE Lighting
- NBC
- GE Plastics
- GE Power Systems
- Corporate Research & Development

For the help you need in GE... contact the GE Business Information Center
e-mail: geinfo@www.ge.com
phone: 1-800-626-2004; -or- 1-518-438-6500

Anywhere you see  you may select it to return to this page.



Search Here and Worldwide

Index of Information Here

Employee Directory

Here at the Berkeley Lab, science is an endless frontier of inquiry, one that feeds our sense of adventure and our passion for discovery. Our 3,400 employees are dedicated not only to the advancement of knowledge, but to solving broad technological challenges and contributing to our nation's economic competitiveness. The first of the national laboratories, the Berkeley Lab is managed by the University of California for the U.S. Department of Energy.

Welcome to the Berkeley Lab
Research Highlights for the Year, our Annual Report, core capabilities, and history.

Scientific Programs
Technical information and data from research here; Conferences and Seminars.

Research News and **Publications**
Science Articles Archive | Currents | Institutional Plan

Our Workplace
Laboratory Support Services includes links to the RPM, PUB3000, benefits information, purchasing, & a directory of down-loadable forms. Current Job Openings. The Calendar of Events lists meetings, classes, and events of interest to employees. Directions to the Lab

Computing & Networking **Library Services**

Educational Programs **Technology Transfer**

Exploring the Web
Scientific information from around the world, links to institutions related to the Lab, and information on how to create and publish Web pages here. What's New on the Web Here

---

You are the 359,055th visitor to our Home Page. | More statistics on the Web here

Questions and comments to the webmasters

ISES

The International Solar Energy Society

EuroSun '96

Freiburg, Germany

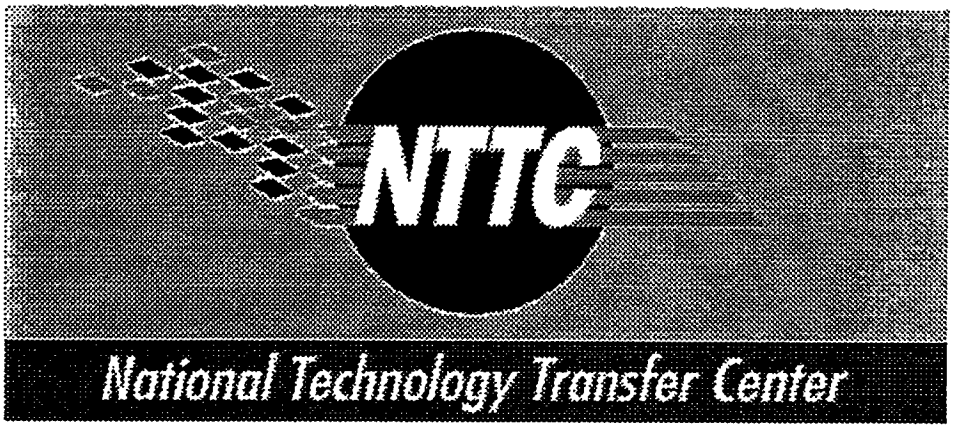
Welcome to the EuroSun '96 Information Application. This is a Notes application, directly published on the Web using the InterNotes product, kindly sponsored by Lotus.

These pages will contain constantly updated pages of current events, happenings, news, conference programs and everything else that is needed to stay abreast of what is happening with the organisation of the Conference.

Check back often!

Click below to browse documents:

- Documents
  - by Category
  - by Date



Welcome To The NTTC Home Page!

NTTC is the hub of a national network linking U.S. companies with federal technologies. Those technologies can be converted into practical, commercially-relevant applications. The center's **free** Gateway Service provides callers with direct contacts in the federal laboratory system. The Gateway Service is available 8:30am - 8pm EST weekdays by calling 800-678-6882. For those of you with Netscape 1.1, you might want to take our "Guided Tour" of the NTTC Web Site. If you use any other browser, take a "Self Guided Tour".

NTTC Activities, Projects, and Information

- Finance & Administration and Information Products
- Product Development and Training Marketing & Technology Products

US Government Information Sources (WWW Links)

- Links to **over 750** Government Home Pages - WWW Virtual Library

Search NTTC Information & Databases

- Search 20 NTTC Databases & All NTTC Non-Database Text Files

Technology Gateways:

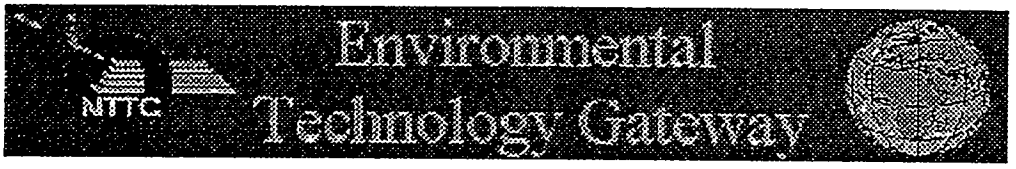
- Environmental Technology Gateway
  - ☐ News, Programs, Technologies, and Resources
- Health, Assistive, and Rehabilitation Technology Gateway NEW
  - ☐ Technology Information from the Department of Veteran's Affairs and NIDRR
- Inventions and Innovation Gateway
  - ☐ Sources of Assistance for Inventors, and New Inventions
- Law Enforcement Gateway NEW
  - ☐ Department of Justice and Criminal Justice Information
- Licensing and Partnership Opportunities Gateway
  - ☐ Licensing and Cooperative R & D Agreement (CRADA) Opportunities

- Manufacturing Technology Gateway
  - ☐ Programs, Technologies, and Resources for Manufacturers
- Solicitations and Opportunities Gateway NEW
  - ☐ SBIR & STTR Solicitations and Awards
- Technology Transfer Gateway
  - ☐ Organizations, Networks, Programs, Events, and Employment Opportunities
- Technical, Financial, and Business Assistance Gateway
  - ☐ Technical and Economic Assistance for Small Businesses

Suggestions/Comments/Questions: Click Here.
The NTTC home page is maintained by: Chuck Monfradi & Sean Loy

NTTC 

NASA



- ☐ Environmental Conferences/Shows/Workshops
- ☐ Environmental Programs, Plans, and Strategies
- ☐ Environmental Solicitations/RFP's
- ☐ Environmental Technologies from Various Agencies
  - ☐ Department of Defense (DOD)
  - ☐ Department of Energy (DOE) NEW
  - ☐ Environmental Protection Agency (EPA)
  - ☐ Interagency
  - ☐ National Aeronautics and Space Administration (NASA)
  - ☐ Other Federal Agencies
  - ☐ Environmental Technology Update - Summary of Congressional Actions & Impacts NEW
- ☐ Environmental Related Phone Numbers NEW
- ☐ Financing Development of Environmental Technologies
- ☐ DOIT Comittee Coordinating Group Report for FY 95 NEW
- ☐ General Environmental Information
- ☐ Global Environmental Technology Enterprise
- ☐ Laboratories
  - ☐ Environmental Protection Agency (EPA) Labs
  - ☐ Other Federal Environmental Labs
- ☐ Pollution Prevention Yellow Pages
- ☐ White House Information
  - ☐ Bridge to a Sustainable Future - National Environmental Technology Strategy
  - ☐ Environmental Technologies Testing and Demonstration Sites NEW
  - ☐ White House Technology for A Sustainable Future (TSF) Initiative
  - ☐ White House Rapid Commercialization Initiative (RCI) Announcement NEW
- ☐ World Wide Web (WWW) Servers - Over **130 environmental links**

Search Environmental Information

- ☐ Search For:

- ☐ Click here to see how to compose a search.

NTTC Home Page

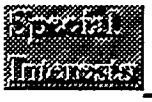
Philip Lader

ABOUT SBA | RESOURCES


Starting Your Business


Financing Your Business

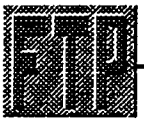

Expanding Your Business



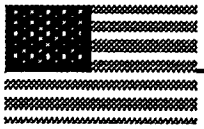
Special Interests


Great Business Hot-Links!


SBA's Gopher server



SBA's FTP server



Shareware Library of Programs to Run a Business

Go to the White House Home-Page

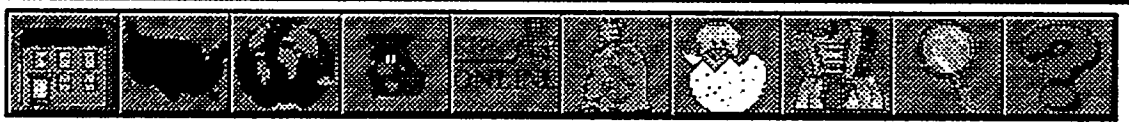
Go to the House of Representatives or the Senate

U.S. Business Advisor

SBA Usage Statistics

Lynx users click here!

Turn Off



www@www.sbaonline.sba.gov

The Small Business Advisor

(Helping the entrepreneur startup and run a successful business)

This page is NETSCAPE-ENHANCED

Last Updated: 12/19/95
Information International

How To Contact Us

We may be reached any number of ways. Use whatever is convenient for you.

- Telephone: (703) 450 7049
- FAX: (703) 450 7394
- E-mail: bobs@isquare.com
- Mail: Box 579, Great Falls, VA 22066

Home Return to home page

A Business Opportunity

Start your own business while keeping your present job. We are distributors of wholesale merchandise including high-quality gift items, novelties, and other speciality products. Prices to you are below wholesale so you may either wholesale or retail these products. We show you how to market at swap meets, flea markets, retail stores, parties, and by direct mail. A $25 deposit (refundable with an initial order) brings you a giant wholesale product catalog and a 4-volume package that includes the following:

- Business Procedure Manual. Details on ordering, pricing, shipping and other aspects of operating your own wholesale business.
- How to Make Money as a Wholesaler. Step-by-step instructions on supplying merchants, drop shipping, how to be a "wagon jobber," consignment selling ... and more.
- How to Make Money in Rack Merchandising. Details on supplying merchants with display racks stocked with impulse appeal products.
- How to Make Money In Direct Sales. Step-by-step details on how to get product orders from friends, neighbors, acquaintances, organizations.

The product catalog includes all the products you can purchase at below wholesale prices. There are thousands of items including fine jewelery, porcelain, vases, brassware, keychains, flashlights, combs and brushes, auto accessories, lamps, novelties, security items, cameras, toys, radios, and much, much more.

For additional information contact:

Great Falls Merchandising
10814 Fawn Drive
Post Office Box 579
Great Falls, VA 22066
(703) 450 7049
e-mail: bobs@isquare.com

Home Return to home page

http://www.isquare.com/home4x.htm

SPECIAL PRE-RELEASE BOOK OFFER

"The Small Business Startup Guide"

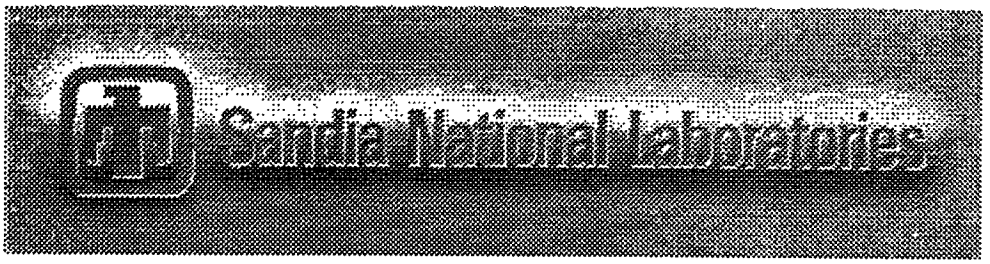
"The Small Business Startup Guide" is presently in printing and is available to readers of this home-page at a special discount price. Regular price of the guide is $15.95 plus $3.50 S/H (and applicable sales tax if you are in Virginia). Mention this homepage and take 10% off the regular price. Quantity discounts are availble. Contact us for details.

We accept personal checks, VISA, Mastercard, and Discover. Books are expected to be available approximately mid-January. If ordering by credit card, it is suggested you send the information to us or give a call rather than using e-mail. We need your full name, credit card number and type, expiration date and a shipping address. Your credit card will not be charged until the book is shipped.

A similar offer will be available at a later date for "Selling to the United States Government."

Learn more about these books and revisit this page for additional information as it becomes available. Send us an E-mail to get on our mailing list.

Return to home page



Welcome to Sandia National Laboratories

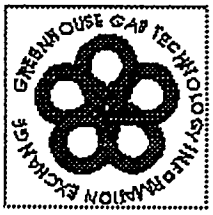
a Department of Energy multiprogram national laboratory in its fifth decade of exceptional service in the national interest. The laboratory is managed for DOE by Sandia Corporation, a Lockheed Martin company.

- ☐ Learn about major programs at Sandia
- ☐ Find information about Sandia's scientific and technical capabilities
- ☐ Click here to find out what's new at Sandia, or browse the Sandia site of the month.
- ☐ Browse our information about doing business with Sandia through the Labs' R&D program offices, the technology transfer and commercialization programs, or opportunities for contracting with Sandia
- ☐ Forget browsing; just search Sandia to find the specific information you want
- ☐ Learn more about Sandia facilities and sites, organization, employees, and other administrative information
- ☐ Look back, look forward: Sandia's history and vision for the future
- ☐ Other Links

Quote of the Day

Welcome to Sandia National Labs || DOE Home Page || Doing Business with Sandia || Search Sandia Information || Send comments, suggestions, questions || Sandia disclaimer of liability

Page owner: Lab Communications
Last modified: August 21, 1995



Welcome to the IEA/OECD Greenhouse Gas Technology Information Exchange.

- ☐ The GREENTIE Directory
- ☐ News: 7000 MegaWatt power plant, no CO2
- ☐ About GREENTIE
- ☐ GREENTIE Liaison Offices
- ☐ IEA Technology Information Centers
- ☐ CC:INFO, Climate Convention Information
- ☐ GreenTimes, the newsletter

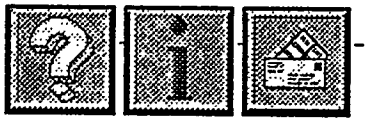
Antenna Index

Last modified 7 December 95.

the GREENTIE Directory Database

To search, simply enter a query -- type the words you want to search for in the '**search term box**' (or follow the instructions by clicking on the **[?]**-button.

This is a searchable index. Enter search keywords:



How to search

To search, simply enter a query -- type the words you want to search for in the '*search term box*' (or follow the instructions from your client as to how to enter a search). If you enter two or more words, than any document that contains ANY of the words will be found. (For example, if you search for **steam turbines**, then any document with either **steam** or **turbines** will be on the list.) If you want only documents containing BOTH **steam** AND **turbines**, then use **AND** between the words; your query would be: **steam and turbines**. See the list below for a full description of searching options and their effect.

The result of this search will be a list of the documents which satisfy your search request (or a reply that indicates that NO documents match). The list is ordered by 'relevancy rank' (highest first), which very roughly corresponds to the number of times the word you searched for occurred in the document versus the size of the document.

The following is a list of all the search options available:

Right-hand truncation (stemming) queries -- Expand Your Search
The query 'enviro*' will find documents containing the words 'environment' as well as 'environmental'. If you are not sure of the spelling or form of the word used in the documents, use this.

'**And**' queries -- Narrow Your Search
The query 'steam AND turbines' will find the **intersection** of all the documents containing the words 'steam', and 'turbines'. The use of 'and' limits your retrieval.

'**Or**' queries -- Expand Your Search
The query 'steam or turbines' will find the **union** of all the documents containing the words 'steam' and 'turbines'. The use of 'or' increases your retrieval.

'**Not**' queries -- Narrow Your Search
The query 'turbines not steam' will find all the documents containing the word 'turbines', and **excluding** the documents containing the word 'steam'. The use of 'not' limits your retrieval.

Nested queries -- Complicated Searches
The query '(steam and turbines) or steam not Australia' will find the union of all the documents containing the words 'steam', and 'turbines'. It will then add (union) all documents containing the word 'steam'. Finally, it will exclude all documents containing the word 'Australia'.

Return to GREENTIE Directory Database

3) **Energy Information on Internet: GREENTIE** [0.9442]

Outline: GREENTIE

Abstract: Energy Information on Internet Title Organization: Greenhouse Gas Technology Information Exchange (**GREENTIE**), Sittard, Netherlands Internet Address: http://www.greentie.org/greentie/ Country: international Type of Organization: services
http://www.ecn.nl/eii/homepage/eii_063.html (5k)

---

4) **The Greenhouse Gas Technology Information Exchange** [0.9352]

Abstract: * The **GREENTIE** Directory * About **GREENTIE** * **GREENTIE** Liaison Offices * IEA Technology Information Centers * CC:INFO, Climate Convention Information * GreenTimes, the newsletter Antenna Index Last modified 21 Sept. 95.
http://www.greentie.org/greentie/index.html (1k)

---

5) **The Greenhouse Gas Technology Information Exchange** [0.9086]

Abstract: * The **GREENTIE** Directory * About **GREENTIE** * **GREENTIE** Liaison Offices * IEA Technology Information Centers * CC:INFO, Climate Convention Information * GreenTimes, the newsletter
http://antenna.nl/greentie/ (1k)

---

6) **The Greenhouse Gas Technology Information Exchange** [0.9082]

Abstract: * The **GREENTIE** Directory * About **GREENTIE** * **GREENTIE** Liaison Offices * IEA Technology Information Centers * CC:INFO, Climate Convention Information * GreenTimes, the newsletter
http://antenna.nl:80/greentie/ (1k)

---

7) **http://www.greentie.org/greentie/** [0.8899]

Abstract: http://www.greentie.org/greentie/

http://www.greentie.org/greentie (0k)

---

8) **Newsletter Articles** [0.8681]

Outline: GLOBAL WARMING UPDATE CLIMATE CONVENTION -- AFRICAN CONCERNS CLIMATE CHANGE IN THE SOUTH PACIFIC UNEP ENVIRONMENT AND ECONOMICS UNIT THE CLIMATE AGENDA UNEP CLIMATE IMPACTS NETWORKS DATABASES AVAILABLE

Abstract: Newsletter Articles Network Newsletter Articles - April-July 1995 * Global Warming Update * Climate Convention - African Concerns * Climate Change in the South Pacific * UNEP Environment & Economics Unit *

Co-Sponsored by
HOME LIGHTING & ACCESSORIES
Look Inside the November Issue

Annotated inter.Light Menu

Lighting Companies - Lighting product companies in categories such as fixtures, lamps, ballasts, controls, fiberoptics, software and more.

Product Database - Searchable lighting product databases listing model by model product specifications: currently featuring compact fluorescents.

NEW Product Gallery - Photos and brief descriptions of editor's choice hot lighting products.

Design Studio - Case studies of innovative lighting design projects, articles and research on lighting design and technology and an international directory of lighting designers.

Catalogs/Software - Download area for demos of lighting software and company product catalogs.

Links - Organizations, institutions, agencies and utilities involved with the lighting industry.

Associations - Lighting industry trade and professional association information.

About inter.Light

If you have questions, comments or suggestions, contact Iris by e-mail at (dkb@irisinc.com), telephone (503-484-9353) or fax (503-484-1645).
This page was revised December 10, 1995.

Information hosted by CREST

lighting design lighting architect lighting design lighting architect lighting design lighting architect lig

inter.Light™

Lighting Links

Lighting Organizations

CIE - International Commission on Illumination
IESNA - Illuminating Engineering Society of North America
IALD- International Association of Lighting Designers
European Optical Society
Optical Society of America
SPIE - International Society for Optical Engineers
International Dark-Sky Association
Association of Energy Service Professionals

Lighting Research and Education

Lighting Research Center Rensselaer Polytechnic Institute
Kansas State Univ Student IES Chapter
The Catalyst Group at Northern Illinois University (links to Virtual Manufacturing Community maintained by Engineering School at the University of Illinois Urbana-Champion)
University of Kansas Architectural Engineering, Lighting and Electrical Systems Undergraduate Program

Government and Utility Lighting Programs

Green Lights Program (EPA)
Energy Efficiency and Renewable Energy Network (USDOE)
Lawrence Berkeley National Lab Energy & Environment Division
California Energy Commission
List of Utility Lighting Programs
San Diego Gas & Electric provides information on efficient lighting for business and residential consumers.

Other Interesting Lighting Sites on the Web

Ed Kademan's Hot List of Energy Information on the Web
Lighting in Canada
The Lighting Advisor

If you have questions, comments or suggestions, contact Iris by e-mail at (dkb@irisinc.com), telephone (503-484-9353) or fax (503-484-1645).
This page was revised August 25, 1995.

Information hosted by CREST

Co-Sponsored by
HOME LIGHTING & ACCESSORIES
Look Inside the November Issue

Annotated inter.Light Menu

Lighting Companies - Lighting product companies in categories such as fixtures, lamps, ballasts, controls, fiberoptics, software and more.

Product Database - Searchable lighting product databases listing model by model product specifications: currently featuring compact fluorescents.

NEW Product Gallery - Photos and brief descriptions of editor's choice hot lighting products.

Design Studio - Case studies of innovative lighting design projects, articles and research on lighting design and technology and an international directory of lighting designers.

Catalogs/Software - Download area for demos of lighting software and company product catalogs.

Links - Organizations, institutions, agencies and utilities involved with the lighting industry.

Associations - Lighting industry trade and professional association information.

About inter.Light

If you have questions, comments or suggestions, contact Iris by e-mail at (dkb@irisinc.com), telephone (503-484-9353) or fax (503-484-1645).
This page was revised December 10, 1995.

Information hosted by CREST

Solstice

Internet Information Service of the Center for Renewable Energy and Sustainable Technology

Welcome to *Solstice*, the site for energy efficiency, renewable energy, and sustainable technology information and connections. We invite you to **register** with Solstice, or leave us some **comments**.

Energy Efficiency

Buildings
Lighting
General
Case Studies
Policy
Related Net Sites

Renewable Energy

Bioenergy
Geothermal
Hydrogen
Solar
Wind
General
Economics
Education
Policy
Related Net Sites

Sustainable Living

Environment
Green Products & Practices
Planning
Case Studies
Related Net Sites

What's New About CREST Organizations on Solstice CREST Store Mailing Lists Events Calendar Subject Index Keyword Search Related Net Sites

A brief note about upcoming downtime...

New CREST discs!

Check out CREST's new CD-ROMs. The Sun's Joules, sponsored by the U.S. Department of Energy, is a multimedia encyclopedia on renewable energy and the environment. TheRenewable Energy Exhibit is an overview of renewable energy technologies and their applications. Both CD-ROMs are available for purchase on-line along with CREST ultimate frisbees using our newon-line order form.

Solstice is sponsored by CREST, the Center for Renewable Energy and Sustainable Technology in Washington, DC. If you prefer, you can visit our gopher or ftp sites.

You can visit the home page of the U.S. Department of Energy'sEnergy Efficiency and Renewable Energy Network (EREN) project. CREST's role in EREN is to provide information from industry, universities, and non-profit organizations.

Comments and questions to:
www-content@solstice.crest.org

The Center for Renewable Energy and Sustainable Technology
Project of the Solar Energy Research and Education Foundation

URL: http://solstice.crest.org/index.html

Solar Radiation Data

Welcome to a prototype of what we hope will become a common way to obtain raw data-in this case, solar radiation and climate summary data for selected locations across the US. This data is primarily intended for the siting, specification, and sizing of solar energy equipment. If you find this to be a useful way of getting data, please let us know, and feel free to indicate other data sets you'd like to see. These data courtesy the National Renewable Energy Lab

The Solar Radiation Data can be accessed in two forms:

- ☐ Version with clickable imagemaps
- ☐ Version without clickable imagemaps

Below are materials explaining the data, technologies, and methodology found in this database.

- ☐ Preface to the World-Wide-Web Edition
- ☐ Preface
- ☐ Introduction
- ☐ Technical Background
  - ☐ References
- ☐ Interpreting the Data Tables
  - ☐ Station Description
  - ☐ Solar Radiation Data for Flat-Plate and Concentrating Collectors
    - ■ Flat-plate collectors facing south at fixed tilt
    - ■ One-axis tracking flat-plate collectors with axis oriented north-south.
    - ■ Two-axis tracking flat-plate collectors.
    - ■ Concentrating collectors.
  - ☐ Climatic Conditions
- ☐ Other Data Formats
- ☐ Methodology
  - ☐ National Solar Radiation Data Base Version 1.1
  - ☐ Calculating Solar Radiation for Flat-Plate and Concentrating Collectors
  - ☐ Estimating the Uncertainty of Solar Radiation Data
    - ■ Random and Bias Errors.
    - ■ Uncertainty Values in Tables.
  - ☐ Deriving Climatic Data
  - ☐ References

Hypertext Conversion by CREST,
Comments and questions to:
www-content@solstice.crest.org

URL: http://solstice.crest.org/renewables/solrad/index.html

Welcome to the AESP Home Page on the World-Wide Web!

Our Mission Statement:

The Association of Energy Services Professionals is dedicated to advancing the professional interests of individuals working to provide value through energy services and energy efficiency by the sharing of ideas information and experience.

Our Keywords:

energy, energy efficiency, energy services, energy management, energy conservation, demand-side management, electricity, and natural gas.

The **Association of Energy Services Professionals** (formerly the Association of Demand-Side Managment Professionals) is an association of nearly 2,000 utility executives, consultants, manufacturers, researchers, government regulators, and others concerned with promoting energy efficiency and value. Our members are individuals active in the energy services industry.

Founded in 1989, the AESP conducts training courses, topical conferences, and workshops. We publish reports, books, a quarterly newsletter, and a new scholarly journal. Most products of the AESP are produced by our membership serving in the AESP Topic Committees. The organization also has several local chapters throughout the US and Canada.

The AESP invites you to look at the following topics in our Web page:

- ☐ Membership information and benefits
- ☐ Association publications

- ☐ The AESP *Energy Services Journal*
- ☐ Association training courses
- ☐ AESP Topic Committees

- ☐ Calendar of events for the energy services industry

- ☐ AESP press releases

- ☐ Our Board of Directors
- ☐ AESP Hot Links to other energy-related Web sites and World-Wide Web search capabilities

  courtesy of InfoSeek Net Search

AESP Members' Web Page Directory!

Our latest membership benefit is here! As a member of AESP you may list your personal home page, or your comany's home page, in our Members' Web Page Directory. Try it now to see who's there. AESP members can list their Web pages by contacting Harry Misuriello, Board Member, via e-mail (harrym@aesp.org).

AESP Members should send in the following information: (1) the "URL", or address, of the page, (2) a 2-3 sentence description indicating if it is a personal or business home page, and (3) your full name and e-mail address. Please use ordinary e-mail with "member web page" in the subject line, and do not attach a word processing file.

Remember, you must be a member of AESP to appear in the Members' Web Page Directory, and it's your job to make sure the Web and e-mail addresses are correct!

Employment Opportunities

This is a hyperlink to the Home Page of the ***misc.industries.utility.electric*** newsgroup and it's Jobs Offered data base.

Subscribe to the AESP-Net E-Mail List Right Now!

The AESP also maintains the AESP-Net mailing list. This is an unmoderated e-mail mailing list for the discussion and exchange of information relating to current topics in the energy services industry. To subscribe to this service, send an e-mail message to **majordomo@AESP.org** with the command **SUBSCRIBE AESP-NET** in the body of the message (commands in the subject line are not processed.)

If your Web browser supports e-mail (and most do), you can subscribe right now! Simply click here to subscribe and enter the command **SUBSCRIBE AESP-NET** into the e-mail form that pops up. Do it today!

For more information about the AESP, contact:

Elliot Boardman, Executive Director
Association of Energy Services Professionals
7040 W. Palmetto Park Rd., Suite 2315
Boca Raton, FL 33433
phone (407) 361-0023, fax (407) 361-0027

...Contact Elliot Boardman via e-mail.

For information regarding this Web page or AESP-Net, contact:

...Contact Harry Misuriello, Board Member, via e-mail with questions or comments about this page.
phone (510) 855-4742

Last updated March 17, 1996

Mica Dam on the Columbia River,
135 km North of Revelstoke, B.C.

- Corporate Business Units
- Customer Services/Powersmart
- Subsidiaries
- Marketplace
- Power System
- Employment With B.C.Hydro
- Utility Industry Address, E-mail List
- News NEW

Table of Contents | Disclaimer | Searchable Index

About BC Hydro

British Columbia Hydro and Power Authority is a provincial Crown corporation. The third largest electric utility in Canada, B.C.Hydro serves 1.4 million customers in an area containing over 92 percent of British Columbia's population.

Between 45,000 and 50,000 gigawatt-hours of electricity are generated annually, depending upon prevailing water levels, with more than 70 percent produced by major hydroelectric generating stations of the Columbia and Peace rivers. Electricity is delivered to customers through an interconnected system of over 70,000 kilometers of transmission and distribution lines.

See our map of B.C.Hydro Transmission Systems and Major Generating Stations.

Need More Information?

To make comments about or request additional information about a specific topic, use the **Feedback** link for that page or section. If no **Feedback** link is available for a topic or to make comments about this site, please contact one of the following Webmasters:

W.J. Fernihough: bill.fernihough@bchydro.bc.ca
Elizabeth McLaren: info.serv@bchydro.bc.ca

Last Revised: December 21, 1995

Appendix H

Bibliography

Bibliography

Allan, Ferne C. "Benchmarking: Practical Aspects for Information Professionals." Special Libraries 84, no. 3 (June 1993): 123-130.

Ankenny, Melvon L. "Evaluating End-User Services: Success or Satisfaction." Journal of Academic Librarianship 84, no. 3 (January 1991): 352-356.

Armstrong, Chris. "CIQM Report on Database Quality." Database (December 1994): 45-48.

Bailey, Charles W.,Jr., and Dana Rooks. "Symposium on the Role of Network-Based electronic Resources in Scholarly Communication and Research." The Public-Access Computer Systems Review 2, no. 2 (1991): 4-60.

Baker, Sharon, and F. Wilfrid Lancaster. The Measurement and Evaluation of Library Services. Information Resources Press, 1991.

Basch, Reva. "Measuring the Quality of the Data: Report on the Fourth Annual SCOUG Retreat." Database Researcher (October 1990): 18-23.

Bates, Marcia. "Subject Access in Online Catalogs: A Design Model." Journal of the American Society for Information Science 37, no. 6 (November 1986): 357-376.

Bellin, David. "The Economic Value of Information." Knowledge: Creation, Diffusion. Utilization 15, no. 2 (1993): 233-240.

Camp Robert C. "Benchmarking: The Search for Industry Best Practices that Lead to Superior Performance." ASQC Press, 1989.

Campbell, Corrine A. "Continuous Improvement in the Boeing Technical Libraries." Bulletin of the American Society for Information Science 20, no. 4 (April 1994): 10-11.

Cetron, Marvin. "Moving Into the Network Village." SpeciaList 18, no.12 (December 1995):1,15.

---. "The Changing Face of the Internet." SpeciaList 19, no.1 (January 1996): 1,15.

Cullen, Rowena. "Evaluation and Performance Measurement in Reference Services." New Zealand Libraries 47, no. 1 (March 1992): 11-15.

Dalrymple, Prudence Ward. "Users' Experience of Information Retrieval Systems: An Exploration of the Relationship Between Search Experience and Affective Measures." Library and Information Science Research 14 (1992): 167-181.

Dalton, Gwenda M. E. "Quantitative Approach to User Satisfaction in Reference Service Evaluation." South African Journal of Library and Information Science 60, no. 2 (June 1992): 89-103.

Dern, Daniel P. The Internet Guide for New Users. New York: McGraw-Hill, 1994.

Dillon, M., E. Jul, M. Burge, and C. Hickey. "Assessing Information on the Internet: Toward Providing Library Services for Computer-Mediated Communication. Results of an OCLC Research Project." Internet Research 3, no. 1 (March 1993): 54-69.

"DOE Computer Program will be Able to Analyze Impact of Energy Policy." PR Newswire, (Dialog File 148: Trade & Industry Index), Pennwell Publishing Company, 29 June 1992.

Dudman, Jane. "Better by Communication: Electronic Exchange of Information can Dramatically Improve the Quality of Products and Processes." Computer Weekly (11 November 1993): 34.

Edwards, Susan, and Mairead Browne. "Quality in Information Services: Do Users and Librarians Differ in Their Expectations?" Library and Information Science Research 17 (1995): pp 163-182.

Elzy, Cheryl, Alan Nourie, F. W. ,. Lancaster, and Kurt M. Joseph. "Evaluating Reference Service in a Large Academic Library." College & Research Libraries 52, no. 5 (September 1991): 454-465.

Ferguson, Jeffery M., and Robert A. Zawacki. "Service Quality: A Critical Success Factor for IS Organizations." Information Strategy: The Executive's Journal 9, no. 2 (December 1993): 24-30.

Fidel, Raya. "Searchers' Selection of Search Keys: I. The Selection Routine." Journal of the American Society for Information Science 42, no. 7 (August 1991): 490-500.

---. "Searchers' Selection of Search Keys: II. Controlled Vocabulary or Free-Text Searching." Journal of the American Society for Information Science 42, no. 7 (August 1991): 501-514.

---. "Searchers' Selection of Search Keys: III. Searching Styles." Journal of the American Society for Information Science 42, no. 7 (August 1991): 515-527.

Furner, Jonathan, and Peter Willett. "A Survey of hypertext-based public-access point-of-information systems in UK Libraries." Journal of Information Science 21, no. 4 (1995): 243-255.

Gluck, Myke. "Understanding Performance in Information Systems: Blending Relevance and Competence." Journal of the American Society for Information Science 46, no. 6 (July 1995): 446-460.

Griffiths, Jose-Marie. Special Libraries: Increasing the Information Edge. Washington D.C.: Special Libraries Association, 1993.

--- and Donald W. King. "Evaluating Performance of Information Center Operations and Services." In Evaluating the Effectiveness of Information Centres and Services. North Atlantic Treaty Organization (1988).

--- and Donald W. King. A Manual on the Evaluation of Information Centers and Services, AAIA, April 1991.

Hernnon, P., and C. Metoyer-Durah. "Discussion Forum: the Public." Government Information Quarterly 9, no. 1 (1992): 1-10.

Hernon, Peter. "Disinformation and Misinformation through the Internet: Findings of an Exploratory Study." Government Information Quarterly 12, no. 2 (1995): 133-139.

Hoffman, K. H., and A. K. Gumbnir. "Evaluation of an Industry-Based Drug Information Service." Drug Information Journal 27, no. 2 (1993): 549-560.

Inwood, Clifford. "To Err is Human, to Forgive Uncommon in IS (The Scarcity of Metrics Data in Information Systems Departments." Computing Canada 20, no. 6 (16 March 1994): 22.

Johnson, Peggy. "When Pigs Fly, Or When Access Equals Ownership." Technicalities 12, no. 2 (February 1992): 4-7.

Jones, Thomas and W. Earl Sasser, Jr. "Why Satisfied Customers Defect." Harvard Business Review 73, no.6 (November-December 1995):88-99.

Kazlauskas, Edward John, Rich Pinder, and Judith H. Richardson. "A Review and Exploratory Investigation of Instructional Design Strategies Relevant to Library and Information Management Software." Information Technology and Libraries (June 1990): 121-134.

King, Donald W., and Jose-Marie Griffiths. "Evaluating the Effectiveness of Information Use." In Evaluating the Effectiveness of Information Centres and Services. North Atlantic Treaty Organization (1988): 1.1-1.5.

Lawes, Ann. "The Benefits of Quality Management to the Library and Information Services Profession." Special Libraries 84, no. 3 (June 1993): 142-146.

Liebscher, Peter, and Gary Marchionini. "Browse and Analytical Search Strategies in a Full-Text CD-ROM Encyclopedia." School Library Media Quarterly (June 1988): 223-233.

Lynch, Clifford A. "The Development of Electronic Publishing and Digital Library Collections on the NREN." Electronic Networking 1, no. 2 (December 1991): 6-22.

Manning, Helen. "Total Quality Management: Not Just Another Flavor of the Month." Bulletin of the American Society for Information Science 20, no. 4 (May 1994): 9.

Marchionini, Gary. "Information-Seeking Strategies of Novices Using a Full-Text Electronic Encyclopedia." Journal of the American Society for Information Science 40, no. 1 (January 1989): 54-66.

---, Diane Barlow, and Linda Hill. "Extending Retrieval Strategies to Networked Environments: Old Ways, New Ways, and a Critical look at WAIS." Journal of the American Society for Information Science 45, no. 8 (September 1994): 561-564.

Maxwell, Bruce. "The 10 Best Federal Government BBSs." Online User (Jan/Feb 1996): 36-41.

Martyn, J. "European Examples of Evaluating the Effectiveness of Information Centres and Services." In Evaluating the Effectiveness of Information Centres and Services. North Atlantic Treaty Organization (1988): 3.1-3.15.

Meadows, A. J. "Measures, Methods and Models Employed in Evaluating the Effectiveness of Information Centres and Services." In Evaluating the Effectiveness of Information Centres and Services. North Atlantic Treaty Organization , no. 2.1-2.16 (1988).

Morton-Schwalb, Sandy. "The Linear File: Reinventing Access To Government Information: Fact Or Fiction." Database 17, no. 6 (December 1994): 8-9.

Ojala, Marydee. "Quality Online and Online Quality." Online 116, no. 1 (January 1992): 73-75.

Phillips, John T. Jr. "Software for Surveys." Records Management Quarterly 30, no.1 (January 1996):54-56, 82.

Patrick, Leonard W. "On My Mind: This Year is Different: Facing Outcome Assessment." Journal of Academic Librarianship (September 1992): 228-229.

Perrault, Anna P., and Arseneau. "User Satisfaction and Interlibrary Loan Service: A Study at Louisiana State University." RQ 35, no. 1 (September 1995): 90-100.

Powell, James. "World Wide Web: Creating a Hypertext Library Information System." Database 17, no.1 (February 1994): 59-66.

Ryan, Susan M. Downloading Democracy: Government Information in an Electronic Age. New Jersey, Hampton Press, Inc. 1996.

Sandore, Beth. "Online Searching: What Measure Satisfaction?" Library and Information Science Research 12 (1990): 33-54.

Saunders, Gerald. "Quality Assured: Evaluation of Library and Information Services." Health Libraries Review 8, no. 1 (March 1991): 31-33.

Seymour, Sharon. "Online Public Access Catalog User Studies: A Review of Research Methodologies, March 1986-November 1989." Library and Information Science Research 13 (1991): 89-102.

Shaughnessy, Thomas W. "Assessing Library Effectiveness." Journal of Library Administration 12, no. 1 (1990).

Special Libraries Association. Presidents's Task Force on the Value of the Information Professional. Final Report. Preliminary Study. Washington, D.C.: 1987.

St. Clair, Guy. "Benchmarking, Total Quality Management, and the Learning Organization: New Management Paradigms for the Information Environment." Special Libraries 84, no. 3 (June 1993): 155-157.

---. "The Future Challenge: Management and Measurement." Special Libraries 84, no. 3 (June 1993): 151-154.

Stillman, Neil J., and Norman Oslik. "Working with the Public to Ensure Public Access to Federal Information in an Electronic Age: Proceedings of the Fifth Solomon's Interagency Conference on Public Access, June 27-28, 1994." Government Information Quarterly 12, no. 2 (1995): 163-198.

Strub, Melanie Z. "Quality at Warp Speed: Reengineering at AT&T." Bulletin of the American Society for Information Science 20, no. 4 (April 1994): 17-19.

Tenopir, Carol, Diane Nahl-Jakobovits, and Dara Lee Howard. "Strategies and Assessments Online: Novices' Experience." Library and Information Science Research 13 (1991): 237-266.

Trujilo, Amado A. "Benchmarking at Sandia National Laboratories." Bulletin of the American Society for Information Science 20, no. 4 (April 1994): 12-13.

Tykoson, D. A. "Wrong Questions, Wrong Answers: Behavior vs. Factual Evaluation of Reference Service." Reference Librarian , no. 38 (1992): 151-173.

U.S. Department of Energy. "Total Quality Management Implementation Guidelines." December 1993.

Valovic, Tom. "Towards a New Metric: Quality of Information." Telecommunications 28, no. 8 (July 1994): 8.

Van House, Nancy A. "Output Measures in Libraries." Library Trends 38, no. 2 (September 1989): 268-79.

---. "Research on the Economics of Libraries." Library Trends (March 1984): 407-423.

---. "The Use of Public Library Roles for Effectiveness Evaluation." Library and Information Science Research 16 (1994): 41-58.

Watson, Greg. The Benchmarking Workbook: Adapting Best Practices for Performance Improvement. Productivity Press, 1992.

White, Marilyn, and Eileen G. Abels. "Measuring Service Quality in Special Libraries: Lessons from service marketing." Special Libraries (December 1995): 36-45.

Whitlatch, J. B. "Reference Services: Research Methodologies for Assessment and Accountability." Reference Librarian , no. 38 (1992): 9-19.

Widdows, Richard, Tia A. Hensler, and Marlaya H. Wyncott. "The Focus Group Interview: A Method for Assessing Users' Evaluation of Library Service." College & Research Libraries 52, no. 4 (July 1991): 352-259.

Wiederhold, G. "Digital Libraries, Value, and Productivity." Communications of the ACM 38, no. 4 (April 1995): 85-96.

D:\EREN\SURVEY\FINALRPT\SURVEY.BIB

Appendix I

Detailed Responses
3½-inch Disc Copy
ASCII