ornl

ORNL/M-529

OAK RIDGE
NATIONAL
LABORATORY

MARTIN MARIETTA

A New Technology Transfer Process for DOE's Residential and Commercial Conservation Program

Marilyn A. Brown
Dennis L. White
Rebecca Vories
Sarah Kirchen

OPERATED BY
MARTIN MARIETTA ENERGY SYSTEMS, INC.
FOR THE UNITED STATES
DEPARTMENT OF ENERGY

This report has been reproduced directly from the best available copy.

Available to DOE and DOE contractors from the Office of Scientific and Technical Information, P.O. Box 62, Oak Ridge, TN 37831; prices available from (615) 576-8401, FTS 626-8401.

Available to the public from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Rd., Springfield, VA 22161.
NTIS price codes—Printed Copy: A06 Microfiche A01

This report was prepared as an account of work sponsored 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 authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

ORNL/M-529

ENERGY DIVISION

A NEW TECHNOLOGY TRANSFER PROCESS FOR DOE'S RESIDENTIAL AND COMMERCIAL CONSERVATION PROGRAM

Marilyn A. Brown
Dennis L. White
Rebecca Vories*
Sarah Kirchen†

*Infinite Energy
†U.S. Department of Energy

October 1988

Report prepared by
Oak Ridge National Laboratory
Oak Ridge, Tennessee 37831
operated by
MARTIN MARIETTA ENERGY SYSTEMS, INC.
for the
U.S. DEPARTMENT OF ENERGY
under contract DE-AC05-84OR21400

CONTENTS

Page

LIST OF TABLES v

LIST OF FIGURES v

ACKNOWLEDGEMENTS vii

ABSTRACT ix

1. BACKGROUND AND PURPOSE 1

1.1 PURPOSE OF THE PLAN 1
1.2 SCOPE AND NATURE OF THE PLAN 2

2. RCCP'S RESEARCH RESULTS AND AUDIENCES 5

2.1 RCCP'S RESEARCH RESULTS 5
2.2 RCCP'S AUDIENCES 9
2.2.1 Background 9
2.2.2 An Analysis of RCCP's Primary Audiences 13
2.2.3 Guidance for Audience Targeting 15
2.2.4 Innovators and Opinion Leaders 15
2.3 REACHING RCCP'S AUDIENCES THROUGH ESTABLISHED NETWORKS 17

3. ASSESSING NEEDS, SELECTING AND IMPLEMENTING TRANSFER MECHANISMS AND EVALUATING EFFECTIVENESS 23

3.1 ASSESSING NEEDS 23
3.1.1 Technical Assistance Interest Surveys 26
3.1.2 Focus Groups/Rap Sessions 27
3.1.3 Interviews 28
3.1.4 Post-Use Analysis 28
3.1.5 Project and Program Review Committees 28
3.1.6 Program Implementers Invitational Roundtable 29
3.1.7 Recommended Needs Assessment Approaches 30
3.2 ANALYZING POTENTIAL TECHNOLOGY TRANSFER MECHANISMS 30
3.2.1 Pros and Cons of Different Mechanisms 31
3.2.2 Questions for Effective Communication Planning 35
3.2.3 Leveraging Throught Existing Conferences 39
3.3 EVALUATING PROGRESS 43
3.3.1 Special Evaluation Issues 43
3.3.2 Methods of Evaluating Progress 45
3.3.3 Recommended Evaluation Activities 47

4. IMPLEMENTATION 49

4.1 RCCP'S CURRENT TECHNOLOGY TRANSFER ACTIVITIES 49
4.2 RCCP STAFF VIEWS ON TECHNOLOGY TRANSFER 49

4.3 A PROPOSED TECHNOLOGY TRANSFER STRATEGY FOR RCCP 49
4.3.1 Technology Transfer at the Project Level 50
4.3.2 Technology Transfer at the Program Level 54
4.4 ORGANIZATIONAL STRATEGY 58
4.5 CONCLUSIONS 59

5. REFERENCES 61

APPENDIX A 63

APPENDIX B 75

APPENDIX C 81

LIST OF TABLES

A.1 Inventory of Conferences 63

LIST OF FIGURES

Page

2.1 Classification of RCCP results 6

2.2 Audiences and linkages to be stressed in RCCP's technology transfer strategy 10

2.3 RCCP's primary, secondary, and tertiary audiences 12

2.4 RCCP's primary and secondary associations 19

2.5 News media information clearinghouses, and other networks 21

3.1 Transfer mechanisms: characteristic advantages, disadvantages, and appropriate situations for use 32

3.2 Progression from awareness to adoption 36

3.3 RCCP primary audiences served by 65 energy conferences 41

3.4 End use sectors addressed by 65 energy conferences 41

3.5 Methods of assessing needs and evaluating progress 46

4.1 A proposed technology transfer strategy for RCCP projects 51

4.2 Putting it all together: an example based on the RECAP project 53

ACKNOWLEDGEMENTS

Several individuals provided insightful reviews of preliminary drafts of this plan, including: Fred Abel and Mary Fowler of DOE, Bonnie Cornwall (California Energy Extension Service), John Duberg (Kearney/Centaur), Peter duPont (Home Energy), and Clark Gellings (EPRI). Their assistance is greatly appreciated.

ABSTRACT

This report provides a technology transfer plan for DOE's Residential and Commercial Conservation Program (RCCP). It catalogues and classifies the types of research results and lessons developed and disseminated by the Program, and examines the audiences for these results. It then describes the process of assessing needs, analyzing potential technology transfer mechanisms, and evaluating progress that should be part of the technology transfer process for RCCP and its individual projects. A technology transfer strategy is proposed along with recommended future technology transfer activities. A set of seven worksheets is also developed to help RCCP program managers design outreach efforts for their current and future projects.

1. BACKGROUND AND PURPOSE

1.1 PURPOSE OF THE PLAN

This planning document outlines a technology transfer strategy to support the goals of DOE's Residential and Commercial Conservation Program (RCCP). RCCP engages in a blend of both mandatory and voluntary efforts to promote energy efficiency in residential and commercial buildings. In particular, it manages a mandated program, the Residential Conservation Service, and fosters voluntary actions to increase residential and commercial energy efficiency by program implementers and energy intermediaries, such as utilities, utility regulators, state energy offices, local governments, non-profit organizations, private sector organizations, and trade and professional organizations. An effective technology transfer component is integral to accomplishing both the mandatory and the voluntary aspects of the program.

The Conservation Service Reform Act, enacted on August 28, 1986, specifies the technology transfer role of the RCCP Program in regard to the mandated Residential Conservation Service. The Act requires that DOE "disseminate to the States and public utilities information providing technical assistance and relating to the most cost-effective energy conservation procedures and devices (including residential energy conservation measures) and the most successful [RCS] plans. . . ." This will be accomplished, in part, by conducting "seminars in various regions of the United States." The Act also requires DOE to "make the information (described above) available to the public."

As part of its effort, RCCP commissions research and analysis projects which in part meet the program's regulatory requirements. Self-reporting by states and utilities to RCCP, and other sources of research, such as DOE's Office

of Buildings and Community Systems, provide additional results that RCCP seeks to disseminate.

The RCCP technology transfer role in fostering voluntary actions involves communicating with a potentially wide array of audiences. The transfer mechanisms that could be employed are also numerous - ranging from various types of technical exchange to the establishment of public/private partnerships, the preparation and dissemination of material, and the development of decision tools.

The technology transfer strategy outlined in this plan attempts to narrow the range of possible transfer and outreach activities to those that can most effectively acomplish the RCCP's goals.

1.2 SCOPE AND NATURE OF THE PLAN

The scope of the plan is circumscribed as follows. It will:

- provide for the CSRA technology transfer mandate and support the voluntary portion of the RCCP program;
- design a needs assessment and feedback process for RCCP;
- provide implementation and organizational strategies;
- focus primarily on transferring RCCP results (and only secondarily on transferring the research results of others);
- cover the 1988-89 fiscal years which is the time period mandated by CSRA; and
- be primarily prospective and proactive in orientation, focusing on how recent and future results should be actively transferred.

Other desirable features of the plan that were determined at the outset include the following:

- continue to nurture ties with program implementers and energy intermediaries with whom RCCP has already established positive relationships;

- be user friendly to RCCP project managers and collaborators from the national labs and elsewhere;
- focus on transferring project results and issues rather than simply project reports;
- tailor results and products to specific groups of program implementers and energy intermediaries over the course of a project, as the results evolve and the target audiences change;
- facilitate interaction and collaboration of RCCP with program implementers and energy intermediaries;
- foster networking among program implementers and energy intermediaries; and
- leverage resources through existing mechanisms and cost-sharing, where possible, and through new mechanisms only if a clear and demonstrable need exists.

Outreach activities need to be tailored to the nature of the research results being transferred, and the audiences being targeted. Thus, this plan begins with a discussion of the nature of RCCP's results and its audiences (Chapter 2).

The plan turns to the process of assessing needs - the intelligence gathering step that provides the foundation of an effective research and technology transfer program. The range of transfer mechanisms that can be employed in implementing a technology transfer program is then discussed, as is the process of evaluating progress (Chapter 3). Finally, RCCP's current technology transfer activities are described, and a proposed technology transfer strategy for RCCP is outlined (Chapter 4).

Throughout this plan, RCCP's current and recently completed projects are used to illustrate various points about technology transfer. Those projects include evaluations of the following programs:

- Weatherizing Homes in Portland (Morgan, 1988);
- General Public Utilities' Residential Energy Conservation Action Program;
- Florida Power and Light's Home Energy Loss Prevention Program;

- North Carolina's Alternative Energy Corporation; and
- Boston Edison Company Pilot.

Other projects are reviews of state and utility conservation programs, development of A Simplified Energy Analysis Method, a study of energy conservation among nonprofits, and an outreach program targeting plywood manufacturers.

2. RCCP'S RESEARCH RESULTS AND AUDIENCES

Appropriate outreach activities and target audiences depend on the nature of the results being transferred. Thus, this chapter begins by developing a framework for analyzing the results of RCCP's projects. Attention then turns to the audiences served by RCCP and the networks that can be used to reach these audiences.

2.1 RCCP'S RESEARCH RESULTS

There are numerous ways that the results of RCCP's activities can be classified. For instance, one could categorize RCCP results as various types of tangible products - reports, correspondence, software, and such. In terms of developing effective transfer and outreach strategies, however, it is more useful to classify RCCP's results in terms of the issues they address and the lessons they offer. Thus, the classification developed here identifies the types of issues that are most likely to be addressed in RCCP projects. Four general categories are listed (Figure 2.1).

Implementation results provide how-to information that enables states, utilities, and others to more effectively deliver their energy program services. They focus more on product procedures and organizational issues than on specific outcomes. Coalition building may be the focus, as in the report on the Weatherizing Homes in Portland project (Morgan, 1988). Other examples include the analysis of marketing techniques for hard-to-reach audiences provided by Berry, Hubbard, and White (1986), the marketing primer being developed by EPRI with cost-sharing from RCCP, and the description of the implementation phase of a shared savings program described in Brown and Reeves (1985).

Implementation

- marketing strategies
- financing/incentive strategies
- audience outreach strategies
- audience feedback strategies
- staff training programs

Technology and Technique Applications

- energy audit and analysis tools
- specific energy savings strategies and techniques
- cost effectiveness of different energy technologies
- cost effective installation approaches

Planning and Overall Management

- setting priorities among programs and/or audiences
- means of gaining community support and partners for programs
- needs assessment and market research techniques
- methods for estimating energy savings
- evaluation strategies

Program Performance Results

- numbers of people and organizations reached
- amount of energy saved
- persistence of savings over time
- cost/benefit ratios

Fig. 2.1. Classification of RCCP results.

Planning and Overall Management results are also process oriented, but they apply more to an entire program rather than to a specific project. They concentrate on how-to information on integrating the many different projects into a coherent program, and on evaluating effectiveness. Such results were provided by Kreitler (1986) in her review of utility conservation programs, by Kearney/Centaur (1987) in their evaluation of the North Carolina Alternative Energy Corporation, and by Brown, Berry, White, and Zeidler (1986) in their analysis of a utility's portfolio of residential incentive programs.

Program Performance Results cover the concrete findings of research or technical assistance efforts. They are not how-to oriented, but rather document "hard" data concerning the effectiveness and impacts of programs and technologies. Examples include the analysis of the impacts of a New Jersey Utility's residential shared savings program (Brown and White, 1987) and a study of the salesmanship capabilities of a Florida utility's energy auditors (Brown, Berry, White, and Zeidler, 1986).

Other results relate to **Technology and Technique Applications.** Almost all programs in the energy efficiency area employ specific technologies or design tools and techniques. These lessons from the energy efficiency applications provide information regarding the value of such specific technologies and document the lessons learned regarding how and when to install and use them to maximum advantage. RCCP's recent support of A Simplified Energy Analysis Method (ASEAM-2) will provide such insight (American Consulting Engineers Council, 1987). Performance results for specific energy technologies would be generated primarily outside of RCCP's R&D program, but could be collected, synthesized, reformatted, and distributed by RCCP for its audiences.

Rarely will a project be so focused that it will yield results in only one area. Most projects will provide pertinent information in all issue categories, but the depth of information will probably be limited to one or two. For instance, Brown and White's evaluation of a shared savings program (1987) provides lessons from at least two of the four categories:

- **Implementation**: applying strict eligibility criteria to prospective participants resulted in greater energy savings per participant.
- **Program Performance Results**: energy savings were sufficient to make the program profitable to contractors in three of the four community projects; the extent of behavioral "take back" was minimal.

Each issue will need to be considered when developing an overall technology transfer strategy for the project.

Some important lessons are likely to be of a negative nature - delineating programs that do not work, technologies that are not cost-effective, or implementation strategies that have failed. Transferring these findings to interested parties is complicated by the risk of alienating those individuals and organizations involved in designing or implementing the approaches that did not work. Dissemination of this information can nonetheless provide extrememly valuable guidance for corrective actions. Positive <u>and</u> negative results are important in the learning process.

Exactly how issues are best packaged will depend on the correlation between the particular audiences and the complex of lessons involved in a particular project. The categorization of RCCP results can be used in a variety of ways to support the RCCP technology transfer effort. For instance:

- as projects are planned, concept categories could be used to determine where the focus of the project could be in order to fill in information that is not currently available or is inconclusive;

- issue categories can be used as the organizing principle for feature articles, presentations, and other outreach efforts aimed at broad audiences; and

- where audience interests are clearly defined, packages for specific audiences can be developed covering all the concepts of primary interest to them.

2.2 RCCP'S AUDIENCES

2.2.1 Background

Reflecting RCCP's mandatory and voluntary mission to foster energy conservation programs in the residential and commercial sectors, the audiences for RCCP's technology transfer program are program implementers (PIs) and energy intermediaries (EIs). Program implementers are involved in energy efficiency program delivery to end users, and include state energy offices, state utility regulators, local governments, utility companies, nonprofit organizations, and private-sector organizations such as energy services companies. Energy intermediaries are organizations and individuals that influence the implementation of energy efficiency in buildings they own, build, equip, design, or service. The PIs and EIs provide an infrastructure and network for improving the energy efficiency of end user sectors that ultimately benefit from RCCP's activities (Fig. 2.2).

Although RCCP's mandate covers the entire residential and commercial sectors, and although the regulatory program authorized by CSRA covers the entire residential sector, RCCP has elected to provide special emphasis to three particular end users submarkets, where possible. Over the next several years, the RCCP strategic plan calls for placing special emphasis on:

- lower-income homeowners that are ineligible for participation in the Weatherization Assistance Program;
- middle-income homeowners; and
- the owner- and renter-occupied small commercial sector.

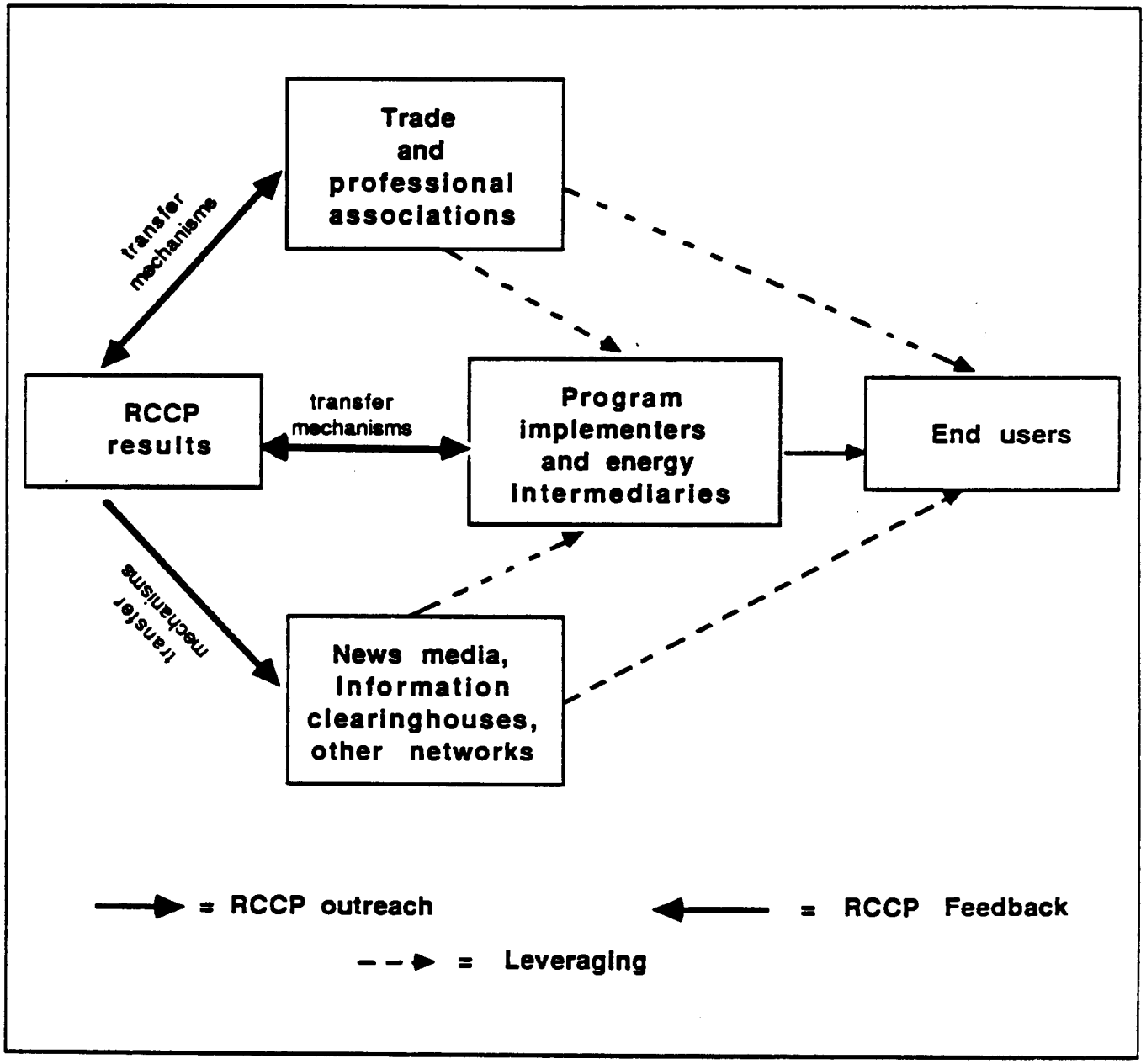

Fig. 2.2. Audiences and linkages to be stressed in RCCP's technology transfer strategy.

These micromarkets reflect RCCP's desire to address under-served markets which offer a high potential for energy savings and where equity considerations lead to a need for special attention. When project results relate to one or more of these end-use sectors, those PIs and EIs with strong relationships to them should be emphasized as audiences.

In addition to this sectoral definition of audiences, the entire universe of RCCP's PIs and EIs can be ranked according to their importance to the RCCP technology transfer mission, as illustrated in Figure 2.3. The ranking helps to develop a more focused and effective technology transfer program for RCCP. The primary audiences are the target audiences for the RCCP program as a whole. Most RCCP projects are relevant to these PIs and EIs. For RCCP to be effective, these audiences must be aware of RCCP's existence, its role, and its products.

Additionally, secondary audiences may be critical to the success of any particular RCCP project. For any one project, however, only a small subset of the potential secondary audiences shown in Figure 2.2 will be important. The subset of interest will depend on the project's particular goals and results.

Tertiary audiences are relevant only upon occasion and generally to a lesser degree than the other PIs and EIs. Again, their involvement would be selective.

Three examples from a set of current RCCP projects help illustrate the diverse secondary audiences that may be appropriate to any single RCCP effort.

(1) The United Way project involves working with utility companies and state energy offices to encourage greater attention to energy conservation among nonprofit organizations. Nonprofit organizations comprise an important audience for this project, as do state and local agencies that fund nonprofits.

PRIMARY AUDIENCES

STATES
- **RCS State Lead Agencies**
- **State Utility Regulators**
  - (PSCs, PUCs, Corporation Commissions)
- **State Energy Offices**
  - Residential Programs
  - Commercial Programs

UTILITIES (RCS and non-RCS Participants)
- Investor-owned
- Publicly-owned (including municipals)
- Rural Electric Cooperatives
- Federally affiliated (BPA, TVA, WAPA)

SECONDARY AUDIENCES

Local Governments
- Weatherization
- Housing
- Planning/Urban Development
- Social Services

Nonprofit and Civic Organizations
- Chambers of Commerce
- Community Action Agencies
- Outreach organizations and networks

Private Sector Energy Professionals
- Energy Services Companies
- Consultants and Conservation/ Mechanical Contractors/ Engineers
- Architects/Designers/Builders
- Developers/Investors/Owners
- Equipment Manufacturers/ Suppliers

State Governments
- Economic Opportunity Offices

TERTIARY AUDIENCES

Federal Agencies
- Agriculture (Cooperative Extension Service)
- Commerce (Economic Development Administration)
- Small Business Administration
- HHS
- HUD

Educators and Researchers

Other State Offices
- Housing
- Planning/Urban Development
- Social Services
- Consumer
- Commerce
- Economic Development
- Legislators
- Governors

Fig. 2.3. RCCP's primary, secondary, and tertiary audiences.

(2) The North Carolina Alternative Energy Corporation project is exploring opportunities for small business energy efficiency improvements. The needs of small businesses in downtown areas will be identified and technical fix and marketing approaches tested. Secondary audiences that will be most interested include economic development organizations and business trade organizations.

(3) The Boston Edison Company project involves a pilot RCS program which uses community-based contractors to provide low and moderate income customers with detailed disaggregated billing information on how they use energy. Secondary audiences likely to be interested in overall results are agencies that serve the low-income community, evaluation researchers, and computer firms that specialize in designing software for energy submetering.

In these three specific projects, the secondary and tertiary audiences listed have become primary audiences based upon the project's particular goals and intended results.

2.2.2 An Analysis of RCCP's Primary Audiences

Given the diversity of RCCP's primary audiences, it is useful to further categorize and characterize these PIs and EIs in order to design an effective outreach approach. For instance, utilities vary in terms of: (1) ownership (investor-owned or publicly-, ratepayer-owned); (2) statutory organization (federally affilitated such as TVA vs other utilities); (3) fuel (primarily gas or electric); (4) position relative to regulation based upon size or jurisdiction (e.g., service area); and (5) role relative to RCS (only the largest utilities are required to participate in RCS). These distinctions just barely begin to explain variations across utilities; more work is needed to segment utilities in ways that help inform RCCP's technology transfer efforts. RCCP's mandate, however, is to serve all the utilities in terms of sharing project results and technical assistance.

Also important to RCCP's technology transfer strategy is the fact that utility personnel engage in a diversity of roles; this leads to variable interest

in the results of RCCP's activities. The following contacts are generally appropriate for many of RCCP's activities, but when targeting audiences for any specific RCCP project, only a subset of these contacts may be relevant:

- RCS supervisors;
- energy auditors;
- marketing specialists;
- planners; and
- consumer and public affairs representatives.

State-level audiences for RCCP are similarly diverse. The RCS state lead agencies are usually located within the primary energy planning and conservation offices or the state energy offices (SEOs). However, frequently the RCS state lead agencies are located in the state regulatory authority for utilities and similar services (PUC's, PSC's, or Corporations Commissions).

In addition to these major distinctions, the variety of energy planning and regulatory frameworks that exist at the state level should be taken into account. This variation is illustrated by the SEO's relationships to their respective governors' offices and other state agencies. For example, in Florida and New Hampshire, the official name of the SEO is the Governor's Energy Office. In New Jersey, the SEO is the Office of Energy Planning and Conservation in The Department of Commerce and Economic Development. In Nebraska and in utilities operated by municipal authorities, utilities are regulated by the local governments rather than by state agencies. Due to these, and other differences across states, the primary audiences are not homogeneous segments.

The diversity of RCCP's primary audiences necessitates a high level of reliance on communication through associations and established networks. This is discussed in greater detail in Section 2.3.

2.2.3 Guidance for Audience Targeting

For an RCCP technology transfer program to be successful, the managers of individual projects should identify their primary and secondary audiences at the start. This audience designation needs to be constantly monitored as well, since appropriate target audiences may evolve as a project progresses and its findings are crystalized. The appropriateness of each type of program implementer and energy intermediary would depend on the end-use audience being addressed, the project results to be offered, and their interest and willingness to participate or receive results. Further, some audiences are best involved in a technology transfer effort by engaging them as partners in the R&D activity or in the technology transfer/technical assistance activity. The types of partners best suited to collaborative R&D are sometimes not well suited for assistance with the subsequent technology transfer. Thus, it may be desirable for partners to change through the project's life cycle. The following guidelines are offered:

- program opportunity notices can be used to openly solicit partners to receive support for collaborative R&D;
- review committee members can be openly solicited or hand picked, depending on the need;
- all primary audiences should receive information about project results, with a contact's name, address, and phone number given for further information; and
- after initial dissemination, future outreach activities should be tailored to achieve maximum impact.

2.2.4 Innovators and Opinion Leaders

Among RCCP's primary audiences, the individuals and organizations most critical to the success of the technology transfer program are the innovators and opinion leaders. Innovators are important because they begin the process of in-the-field testing and demonstration of new concepts and technologies.

Unfortunately, these same innovators often have limited influence upon the adoption process of others, (i.e., they may not be opinion leaders) because, to the majority, they appear to be outside the mainstream.

Individuals (e.g., a program manager or a PUC chairperson) who are innovators tend to be better educated, have more resources, and be more print-oriented than the population at large (Rogers, 1983). Perhaps more germane to RCCP's technology transfer effort are the typical characteristics of innovative organizations (Feller and Menzel, 1977; Radosevich, 1977; Rogers, 1983). Overall, the best predictors of the innovativeness of organizations (e.g., a SEO or a PUC) reflect internal characteristics, including:

- **complexity**: the degree to which an organization's members possess a relatively high level of knowledge and expertise - greater complexity is associated with greater innovativeness;
- **formalism**: the degree to which an organization emphasizes following rules and procedures in the role performance of its members - less formality is associated with greater innovativeness;
- **centralization**: the degree to which authority is centralized - decentralization is associated with innovativeness; and
- **interconnectedness**: the degree to which the units in an organization are linked - greater connectedness is associated with innovativeness.

Other key predictors of innovativeness reflect the organization's external relationships - that is, the organization's "diffusion milieu" (Feller and Menzel, 1977; Elkin, 1983; Rogers, 1983). Key predictors of innovativeness reflected in external relationships are:

- **organizational slack**: the degree to which uncommitted resources are available to an organization - those organizations with greater slack tend to be more innovative; and
- **performance gap**: the degree to which there are demands placed upon the organization to change its behavior - those organizations with a larger performance gap tend to be more innovative.

It is beyond the scope of this report to identify those organizations among RCCP's primary audiences that are innovators. It is clear, however, that innovators exist. Among investor-owned electric utilities, seven utilities account for 70% of the conservation expenditures, seven utilities account for 75% of the load management expenditures, and five utilities account for more than half of peak savings projected for the next 10 years (Investor Responsibility Research Center, 1987). Among state energy offices there are also innovators in least-cost planning and demand-side management (Burkhart, 1987).

Opinion leaders are important because they exercise significant influence over the behavior of "followers." Among individuals, it is known that opinion leaders tend to adopt new products and procedures sooner than the average individual, but they are not as quick to adopt as innovators and are more similar to the population at large in terms of education, resources, and other such characteristics. This "homophily" enables opinion leaders to exert greater influence on subsequent adoption than do innovators.

Little is known about characteristics of organizations that act as opinion leaders. Trade and professional associations, however, often fill this function. These associations are discussed below.

2.3 REACHING RCCP'S AUDIENCES THROUGH ESTABLISHED NETWORKS

The dissemination of RCCP's products can be facilitated by using existing networks that serve program implementers and energy intermediaries. Foremost among these networks are professional associations and organizations.

A variety of trade and professional associations serve RCCP's primary and secondary audiences and can serve as "broker organizations" throughout

the technology transfer process. Through them, user needs can be assessed, results disseminated, and the technology transfer process evaluated. Because they have continuing contact with their members, have their member's confidences, and speak their language, broker organizations provide RCCP with a useful information exchange mechanism.

Broad evidence of public support for the involvement of broker organizations in the transfer of energy technologies to end users became apparent at the public hearings held by DOE across the nation in the fall of 1979 and 1980 in relation to the Building Energy Performance Standards Program. The leading building professional societies and associations, such as the American Institute of Architects, the National Institute of Building Sciences, and the National Association of Home Builders expressed strong interest on behalf of their members in having access to the results of DOE's building energy research (Achenbach and Seaton, 1985; Science Applications, Inc., 1983).

RCCP can catalyze and enhance its technology transfer process by leveraging its results through the use of such organizations, and by supplementing this existing system only where weaknesses or gaps are discovered. The creation of an entirely new network would only lead to costly redundancies.

Figure 2.4 lists those professional and trade associations that serve RCCP's primary audiences (these are called primary associations) and those that serve RCCP's secondary audiences (i.e., secondary associations). RCCP currently has a good working relationship with several of these primary associations; this relationship needs to be generalized to all of the primary associations. Interaction with secondary associations does not need to be as strong, but should occur on a regular basis (e.g., by including them on

standard distribution lists for RCCP reports), and be strengthened as needed for particular projects.

There appear to be few associations that exclusively serve RCCP's targeted end-use markets. The Small Business Administration serves small commercial business, but energy is not a major issue on its agenda. Many low-income households that are ineligible for participation in the Weatherization Assistance Program are elderly, but this segment is small compared with the

PRIMARY ASSOCIATIONS

American Gas Association	National Association of Regulatory Utility Commissioners
American Public Power Association	National Association of State Energy Officials
Edison Electric Institute	National Rural Electric Cooperative Association
Electric Power Research Institute	
Gas Research Institute	

SECONDARY ASSOCIATIONS

American Consulting Engineers Council	National and Regional Governors' Associations
American Institute of Architects	National Association of CAP Agencies
American Planning Association	National Association of Counties
American Public Gas Association	National Association of Home Builders
American Society of Heating, Refrigeration and Air-Conditioning Engineers, Inc.	National Association of Energy Services Companies
American Solar Energy Society	National Conference of States on Building Codes and Standards
Association of Energy Engineers	National League of Cities
Association of Professional Energy Managers	National LP-Gas Association
Building Owners and Managers Association	Nonprofit Energy Conservation Project
Council of American Building Officials	U.S. Chamber of Commerce
Council of State Governments	U.S. Conference of Mayors
Energy Conservation Coalition	United Way
International City Management Association	

Fig. 2.4. RCCP's primary and secondary associations.

total constituency served by agencies such as the Association for the Advancement of Retired Persons. Middle-class homeowners are served by numerous associations, but few focus specifically on their energy needs.

The lack of a strong network of associations serving the energy needs of these targeted end-use sectors indicates that a fairly large number of organizations must be dealt with to reach them, and that these organizations may need supplemental outreach.

Figure 2.5 lists information clearinghouses, news media, and other networks that can be used to support RCCP's technology transfer mission. Several clearinghouses disseminate information on a wide range of topics related to the efficient use and conservation of energy in the residential and commercial sectors. Information on these clearinghouses can be found in the Guide to Energy Efficiency Information Services for the Residential and Commercial Sectors (Centaur Associates, Inc. 1986b). At a minimum, these clearinghouses should receive all of the relevant RCCP reports and mailings.

Other organizations serve networking functions without being formal information clearinghouses (Fig. 2.5). Finally, there are various news media that offer an effective means to reach a wide array of those audiences that are interested in energy issues - including RCCP's primary audiences. The Information Dissemination Plan prepared for RCCP by Centaur Associates, Inc. (1986a) describes many of these. A working relationship with all of these organizations that disseminate information would help RCCP capitalize on existing and established networks to reach its audiences.

Information Clearinghouses

- National Energy Software Center (NESC)
- Clearinghouse on Energy Financing Partnerships
- Conservation and Renewable Energy Inquiry and Referral Service (CAREIRS)
- National Appropriate Technology Assistance Service (NATAS)
- National Technical Information Service (NTIS)
- Congressional Information Service, Inc.
- Office of Scientific and Technical Information (OSTI)

Other Organizations with Networks

- Alliance to Save Energy
- American Council for an Energy-Efficient Economy
- Consumer Energy Council of America
- Environmental Action Foundation
- Foundation for Renewable Energy and Environment
- Nonprofit Energy Conservation Project
- Worldwatch Institute
- Public Technology, Inc.

News Media

- Energy Conservation Digest
- Energy Daily
- Energy and Housing Report
- The Energy Report
- Energy Users' News
- Solplan Review
- Public Utilities Fortnightly
- Conservation Update
- Home Energy
- Energy Design Update
- Progressive Builder
- A/C Heating and Refrigeration News
- ASHRAE Journal

Fig. 2.5. News media information clearinghouses, and other networks.

3. ASSESSING NEEDS, SELECTING AND IMPLEMENTING TRANSFER MECHANISMS, AND EVALUATING EFFECTIVENESS

Technology transfer can be seen as a cycle of three types of activities that recur on a periodic basis. The cycle begins with assessing needs - determining the kinds of information technology and technical assistance that would be valuable to RCCP's audiences. Next comes the step of selecting and implementing transfer mechanisms. This step usually involves creating and formatting the knowledge and materials, and synthesizing and presenting RCCP concepts and products into packages that facilitate use by specific audiences. Outreach activities such as conferences and workshops may also occur here. Evaluating effectiveness is the final step. In order to identify effective future activities, it is necessary to capitalize on lessons learned from past practice. Each of these steps is discussed below.

3.1 ASSESSING NEEDS

Needs assessments assist project managers in determining some of the information that is fundamental to a project's ultimate success, including:

- appropriate audiences;
- appropriate foci;
- effective technology transfer strategies; and
- likely impacts.

In addition to serving project managers, RCCP can also benefit from similar needs assessments at the program-wide level in order to appropriately target research and analysis efforts. The main difference between needs assessments at the project and program level is likely to be the frequency of contact (probably less at the program level) and the positions held by those contacted (more likely to be middle-level implementers at the project level and senior program managers at the program level). The types of organizations represented, however, would be similar.

At the program level, needs assessments generally focus either on what needs to be done, why more has not been done, what has worked successfully in the past, and how past successes can best be duplicated. Some of the specific RCCP issues that would be addressed are:

- Why haven't program implementers and energy intermediaries reached the targeted end-use sectors more effectively?
- How can program implementers and energy intermediaries be assisted to do a better job?
- How effective have projects been to date, and what recommendations can be applied to future work?

At the project level, needs assessments focus on collecting information that will enable the successful completion of a project whose general focus has already been defined. Assessments may address organizational constraints to implementing a project, alternative technical approaches, different ways of generating collaboration and cost-sharing, and methods of disseminating results.

As described in detail later in this section, many different techniques can be used to determine audience needs. These techniques vary in terms of cost, time to implement, accuracy, etc. In general, a combination of approaches will yield a fuller understanding of needs than relying on any single approach.

In planning needs assessment activities, the pros and cons of these various techniques should be considered, and these will depend upon many circumstances.

Characteristics of the project being considered:

- the degree to which a project's direction will be determined by the outcome of a needs assessment;
- timing of the project and the immediacy of the need for input from various audiences; and

- the degree to which a proposed project is novel versus routine.

Characteristics of the primary and secondary audiences:

- the number of people and organizations represented by the audiences;
- the degree of communication which already exists with these audiences;
- the likelihood that the audiences will be in a position to use the results of the project immediately or as part of a long assimilation process; and
- the degree to which those contacted for needs assessment will also be those who will have the most interest in receiving information on the project.

Other considerations:

- the need for an assessment to be made once or on an ongoing basis; and
- the range of assessments being conducted and how they can interface with each other.

Participants in any needs assessment will expect their advice to be used if they are going to take the time out of their busy schedules to provide it. More cooperation will be forthcoming if those contacted feel certain that their responses will have a direct impact on the project design or results.

Both needs assessments and evaluations use many similar techniques. The differences in usage are not so much in the specific techniques employed as in the types and emphasis of questions. The ways that data are analyzed also differ, since needs assessments are prospective and evaluations are retrospective.

Most techniques used for these purposes fall into two general categories - quantitative and qualitative. Quantitative techniques rely on numeric data from a statistically representative sample of people or organizations. These techniques, if properly used, can predict with a reasonable degree of accuracy how the total potential audience will respond or has responded to a particular concept or program. Quantitative techniques work better when what one wants to know can be easily defined and specific

choices carefully described. They are frequently used to determine the size of a potential market, the penetration rate of a particular program or technology, and to assess how well a particular product or program will be received or has been received by the intended audience.

Qualitative techniques work better at early stages of a project when there is a possible need for substantial redirection. These techniques can assist in understanding what people think, but cannot be relied on as predictors of how a total audience might respond. When evaluation funds are limited, they can also be used to determine how people responded to particular program features and what alternative program designs might have been more effective.

The following discussion provides more detail about each of six representative approaches to assessing needs.

3.1.1 Technical Assistance Interest Surveys

Survey is used here in the strictest sense of the word to mean a statistically valid quantitative approach to obtaining information from a particular audience. For instance, the survey recently conducted by ORNL for the Energy Management and Extension Division is an example, (Morell, et al., 1987).

Such surveys are most often conducted by mail, but can also be conducted by phone or in-person. Mail surveys usually have the lowest response rate and in-person the highest; costs vary accordingly. These types of surveys generally take longer and are more expensive than other approaches to gathering information. On the other hand, when properly constructed, they give reliable, in-depth information for planning or evaluation purposes.

Depending on the complexity of the survey and the analysis approach, a minimum of three to six months is required from the initiation of the project to the final report. Some may take a year or more.

3.1.2 Focus Groups and Rap Sessions

The main difference between a focus group and a rap session is the method of selection of participants. In a "true" focus group, there is an attempt to match the participants with a profile of the audience addressed. For instance, if one wanted a focus group of utility RCS program managers, one would attempt to identify participants who represent programs and utilities of various sizes and of varied geographic locations. Focus groups are usually limited in size to 8 to 12 participants.

Rap sessions are generally attended by people who respond to an announcement. The composition of attendees is therefore less controlled than in a focus group. Rap sessions vary more in size but rarely exceed 20 people.

The primary benefit of these approaches is the ability to interact with a group of people faced with similar needs. Frequently the group can spark ideas and considerations that would not come up in a one-on-one interaction. One caution in conducting such sessions is that if those who attend see themselves as competitors or rivals of other participants, the discussion may not be as open and productive as desired.

The cost of conducting focus groups generally runs between $2,000 and $6,000, excluding transportation, if an outside facilitator is used. Unless there is some difficulty in determining who should be invited, focus groups can be completed in a two- to six-week period.

3.1.3 Interviews

These are similar to focus groups in terms of cost, turnaround, and results, but are generally conducted one-on-one by phone or in-person. Depending on the situation somewhere between 8 and 20 people would be contacted.

Purposive interviews differ from focus groups in that very specific information (budget, number of employees, number of customers, number of direct mail pieces sent) is being sought regarding the manager's or the organization's activities in addition to opinions about what is wanted and needed for more effective program management and implementation. Depending on the number of questions and the amount of specific information sought, purposive interviews can be more expensive than focus groups to reach the same number of people.

3.1.4 Post-Use Analysis

Once information is provided to an audience, it is useful to know how it was used and how useful it was. This type of analysis can be conducted by collecting information about each person receiving a report and/or technical assistance and then sending out an occasional survey instrument that would determine how it was used. Alternatively, a survey could be included in each report or left after each technical assistance visit to determine the impact. Usually, neither one of these approaches receives very high response, but they are inexpensive ways to keep tabs on how dissemination efforts are received.

3.1.5 Project and Program Review Committees

Such committees can be used in a variety of different modes and on a one-time or ongoing basis, focusing on one or more of the following:

- design of project;
- critique of pre-designed project;
- progress review;
- review of final results; and
- evaluation of specific or general aspects of a program.

Committees can be selected with as much care as focus groups or can be a group of self-selected individuals depending on the needs of the project manager. One major selection criterion will probably be willingness to participate on an ongoing basis. Committees don't necessarily have to meet in person, but can be contacted individually by mail or phone as the need arises or by conference call if the group is small enough.

There is relatively little out-of-pocket expense for such committees, unless travel costs are to be covered. They can, however, demand a fair amount of professional and administrative time depending on the frequency of meetings, the amount of written information that is provided between sessions, and the amount of interaction desired between sessions with individual committee members. Such committees probably provide the greatest long-term buy-in and commitment to a project and a project approach. If they are excited by the results being produced or the approach being used, committee members can be useful in getting their colleagues interested in using project results later. Committees typically include between 5 and 10 members.

3.1.6 Program Implementers Invitational Roundtable

These are usually somewhat more formal than project committees, and participants would tend to be selected as much for their status as for their ability to provide useful input. They are usually ad hoc or annual or semiannual events rather than ongoing activities. They would tend to deal with the program's focus as a whole rather than project design or

implementation issues. Cost considerations are similar to those for the project review committees, but the size of the group could be as large as 20 to 40 depending on the breadth of representation desired.

3.1.7 Recommended Needs Assessment Approaches

At a minimum each significant project should probably undertake the following needs assessment activities:

- a focus group or rap session consisting of representatives of RCCP primary audiences and the project's primary and secondary audiences, held early enough in the project to gain input into project design (ideally these would be held in conjunction with a conference or workshop that most likely participants would attend); and
- a project review committee to provide ongoing response and redirection as needed.

As a whole, RCCP needs to maintain a broad perspective on what it can do and what it has accomplished. Feedback from individual project needs assessment activities could be synthesized to identify program strengths, weaknesses, and future directions. An annual invitational roundtable would provide a forum for addressing policy issues and long-term strategy. Invitees should be drawn from (1) program implementers and energy intermediaries, and their associations; and (2) associations representing possible end users.

3.2 ANALYZING POTENTIAL TECHNOLOGY TRANSFER MECHANISMS

The technology transfer process is carried out via transfer mechanisms - activities directed at stimulating the use of R&D and program implementation results. Such mechanisms include various types of printed material, meetings, collaborative R&D, and incentives.

3.2.1 Pros and Cons of Different Mechanisms

An illustrative list of transfer mechanisms generally appropriate to RCCP is shown in Figure 3.1. Each mechanism has its own characteristic advantages and disadvantages. Programs using combinations of mechanisms have been found to be most effective.

Some of these transfer mechanisms involve personal channels (e.g., individualized letters, one-on-one discussions); others involve non-personal channels (e.g., journal articles or trade magazine publications). The latter serve primarily to promote awareness of an R&D result, while personal channels are most effective in modifying attitudes and generating adoption and sustained use.

The effectiveness of transfer mechanisms is conditional and depends upon a host of factors, some of which are described below.

- **Budgetary constraints and options.** A reduced budget may require reliance on non-personal mechanisms and leveraging.
- **Nature of the result.** If a result is particularly complex, risky, or high-cost, then specialized, personal, and highly persuasive mechanisms may be required.
- **Audience characteristics.** If numerous small organizations must be reached, then non-personal, mass media approaches may be more appropriate than when few key actors exist.
- **Amount of past contact.** The less aware an audience is of the concepts addressed, the more variety of strategies will be required to successfully move the audience from awareness to use of RCCP's results and concepts.

Figure 3.1 summarizes principal advantages and disadvantages of some commonly employed technology transfer mechanisms and suggests appropriate situations for their use by RCCP staff.

MECHANISMS	ADVANTAGES	DISADVANTAGES	APPROPRIATE SITUATION
•WORKSHOPS/ SEMINARS/ CONFERENCES	•Inexpensive •Assembles key decision makers •Promotes discussion, interaction	•Difficult to follow up	•All stages of technology transfer. The smaller workshops and seminars tend to be most useful for specific topics. Conferences are most useful for subjects with broad appeal.
•TECHNICAL ASSISTANCE (e.g., site visits)	•Direct and immediate •Promotes second generation technology transfer •Can achieve long-term behavioral change	•Highly selective •Expensive	•Complex information needs to be conveyed and illustrations/demonstrations are essential
•PEER EXCHANGES (e.g., site visits)	•Key actors meet, promoting ongoing interaction •Inexpensive •Rapidly accomplished •Technical dialogue can be handled well	•Highly variable pay off	•Key actors need convincing •All stages of technology transfer
•COOPERATIVE R&D PROJECT	•Reduces private sector risk •Accelerates technology transfer •Gains access to enhanced resources •Overcomes "not invented here" syndrome	•Potential interference with private sector	•Government and industry goals and needs match •Program/technology is feasible, yet untested •When a project is just getting started
•PROJECT REVIEW COMMITTEE	•Promotes government/ industry communication •Provides R&D direction •Inexpensive •Easy to administer •Creates program advocates	•Vulnerable to special interest pressures •Proprietary interests may discourage information sharing •Sharing information may discourage product development •Conflicts of interest may occur	•All stages of technology transfer

Fig. 3.1. Transfer mechanisms: characteristic advantages, disadvantages, and appropriate situations for use.

MECHANISMS	ADVANTAGES	DISADVANTAGES	APPROPRIATE SITUATION
•RADIO/ TELEVISION ANNOUNCEMENTS	•Reach a wide audience •Rapid receipt of message	•Impact is likely to be of short duration •Expensive •Likely to be superficial •Ineffective in changing strongly held attitudes	•There is a need to generate broad audience awareness
•VIDEOTAPES	•Highly informative •Reach wide audience •Flexible use •Easily edited and updated	•Must establish a distribution network •Expensive	•Complex information needs to be conveyed and illustrations/demonstrations are essential
•DECISION TOOLS	•Simplifies the communication of complex information	•Necessary computer software may be expensive to develop •Training may be necessary	•Complex information needs to be considered in decision-making in order to generate demand for energy-efficient technologies
•ELECTRONIC BULLETIN BOARDS	•Rapid information exchange	•Necessary computer hardware may be expensive to purchase	•An ongoing exchange of technical information is necessary
•BANKS OF ENERGY PERFORMANCE DATA	•Interagency and international capabilities •Easy access to information	•Passive, must await requests •Data can be inaccurate, incomplete, or out of date	•When a technology is at an active R&D stage and further development is dependent on data assimilation and analysis

Fig. 3.1. Transfer mechanisms: characteristic advantages, disadvantages, and appropriate siturations for use (cont.).

MECHANISMS	ADVANTAGES	DISADVANTAGES	APPROPRIATE SITUATION
•INFORMATION DISSEMINATION CENTERS	•Provide responses quickly "on demand" •Referral services may be available •Easy access to informaiton • Tailored responses to specific questions	•Typically passive, must await requests •Quality dependent on information available and staffing	•Addressing broad, large audiences at later stages of technical development
•MAILINGS (newsletters, fact sheets)	•Effective in generating awareness •Reaches widespread audiences or targeted subset •Rapid receipt of message •Information dissemination does not require major user effort	•Communication is not interactive •May not provide desired information •Depth of information covered tends to be limited by the format •Can be easily ignored	•There is a need to generate broad audience awareness quickly
•TECHNICAL REPORTS	•Tangible, permanent documentation •Can cover complex details necessary for adoption	•No personal contact, thereby limiting impact on behavior	•Addressing scientists and practitioners throughout the stages of technical development
•NEWS RELEASES	•Research widespread audience •Inexpensive	•Information likely to be superficial •Limited impact on behavior	•There is a need to generate broad audience quickly
•ARTICLES IN TRADE JOURNALS AND MAGAZINES	•Tangible, permanent documentation •Can be tailored to an identified audience •Inexpensive	•No personal contact, thereby limiting impact on behavior	•Addressing scientists and practitioners throughtout the stages of technical development •When a specific solution has been identified

Fig. 3.1. Transfer mechanisms: characteristic advantages, disadvantages, and appropriate siturations for use (cont.).

3.2.2 Questions for Effective Communication Planning

Since communication lays the basis for evaluating and, ultimately, using the results of RCCP's research, the following section discusses several questions related to communication planning.

"What type of information should be communicated?" is a key question. The content of the message should reflect, at a minimum, the current knowledge of each audience segment and the criteria each employs in deciding whether or not to use the results of research. It is likely that some RCCP projects will address audiences that know very little about the sponsored activity, while others will be very familiar to the intended audiences. Identifying, even in general terms, how the audience is distributed over the knowledge continuum (from "not at all familar" to "very familar") will be helpful in selecting which technology transfer approach is most useful.

For example, it is likely that many program implementers and energy intermediaries are unfamiliar with energy analysis computer software such as ASEAM-2. Thus, it may be necessary to provide a training program to ensure that RCCP's primary audiences learn enough about ASEAM-2 to be able to assess its strengths and weaknesses, thereby laying the groundwork for adoption. This is one strategy now being used by DOE's Office of Buildings and Community Systems to transfer this software to university engineering professors, and subsequently to their students and the next generation of practitioners and researchers.

As illustrated in Figure 3.2, the process by which individuals and organizations implement new ideas involves a progression from awareness to preference and adoption (Rogers, 1983). As this progression occurs, RCCP must emphasize and then attain different goals (Mohler, 1987). At first the major goal is to get the individual or organization to recognize that a need exists

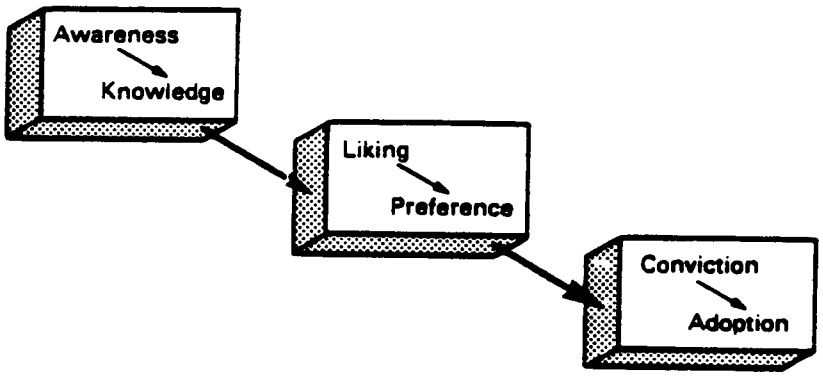

Fig. 3.2. Progression from awareness to adoption

(e.g., a utility's need to gain program participation from difficult-to-reach markets) and that there are ways to satisfy this need. Next, the goal is to convince the individual or organization that the concept or solution RCCP is presenting is valid and desirable. This appeal must be persuasive and the concepts clearly differentiated from alternatives. Lastly, to achieve conviction and adoption, individuals and organizations may need an extra "push." This could be in the form of PUC encouragement, an offer by RCCP to cost share in an evaluation effort, or one-on-one discussions with RCCP or subcontractor staff.

Also to be considered is the form and content of competing messages and ways to handle problems associated with them. Informative, factual, and interesting messages are most effective overall. In preparing these messages, it is crucial to translate them into the language of the groups to whom a transfer activity is directed. Given the diversity of RCCP's audiences, such tailoring will often be needed for successful technology transfer.

The guidebook and seminar series developed in RCCP's Plywood Manufacturers Project is a good example of an effective tailoring of

information. This package was designed specifically for trade association use at regional membership meetings of plywood manufacturers.

The most effective communications are positive and stress the benefits to be obtained through use of the R&D results. Given RCCP's increasing emphasis on voluntary activities, negative approaches would appear to be generally inappropriate. Format decisions are based on the needs of the audiences as well as the requirements and limitations of the budget, the selected media, and the type of message. For example, the target audience may need to be shown a product or methodology in use, or to have graphic illustrations. If substantial detail is necessary, the best format may be a project bulletin, journal article, or magazine with tables, photographs, and graphics.

"Who should do the communicating?" Selection of the appropriate information source should reflect factors such as source credibility and persuasiveness. In general, energy communication studies have found that government-sponsored messages carry more credibility for consumers than appeals based upon apparent vested interests initiated by businesses perceived as selling products and services (Millstein, 1977). Linking messages to government sources will generally improve effectiveness. However, in specific cases (for instance, when the audiences are small businesses or energy professionals), it will be most cost-effective for RCCP to convey messages through trade or professional associations because credence and attention are given to them and they have already established communication channels with their constituents.

Key program implementers and energy intermediaries can augment information. Through testimonials and other demonstrations, they may be

able to persuasively document the virtues of using a new program design feature or technology to those who have not adopted.

What types of incentives should be offered? Establishing incentives or reducing barriers to adoption can be effective in stimulating use of an energy efficient technology or program design. For example, the provision of grants or technical assistance to a small number of utilities or states for conducting feasibility studies might be highly effective in creating some initial usage of an innovative approach to designing an energy efficiency program. Awards for outstanding programmatic or research accomplishments is another alternative.

Unfortunately, little is currently known about the effectiveness of different types of incentives, particularly among program implementers and energy intermediaries (Stern, Berry, and Hirst, 1985). It is likely that incentives would affect mainly those program implementers and energy intermediaries who are already paying attention to the costs of energy efficiency - that is, those who might have adopted an effective approach to energy efficiency without assistance. If this is so, incentives may increase the pace of adoption of those who would have adopted, without assistance, at some later point in time. Accelerating adoption by opinion leaders can be very advantageous since they can then promote the concepts, program designs, or technologies to subsequent generations of users.

"When should different types of transfer activities take place?" The optimum mix of transfer mechanisms is in constant flux as new opportunities become available, audiences season and become educated, and energy programs and technologies mature. Transfer strategies can sometimes capitalize on such dynamic factors as the readiness of various audience segments at different points in time and the effectiveness of different

mechanisms during the various stages of program and technology development. In general, printed material seems to be particularly effective when a new programmatic approach or technology is first being introduced, especially where the concept requires a detailed explanation (Rogers, 1983). It is most effective when followed up by personal contacts. Incentives may be particularly cost effective at the initial stage of commercialization to stimulate early adoption by trend-setters. Then peer matching and communication between the early adopters and others would further stimulate technology transfer.

3.2.3 Leveraging Through Existing Conferences

An inventory of conferences was developed as a means of assessing conferences as a potential technology transfer mechanism suitable for leveraging by RCCP and complying with the CSRA requirement to conduct "seminars in various regions of the United States." Appendix A presents this inventory. It reveals the degree to which RCCP audiences and targeted end-use sectors are currently served by conferences. It also describes the features of each conference that are relevant to determining which are most valuable as mechanisms for RCCP technology transfer.

Collecting information for the inventory of conferences consisted of three steps. Initially, professional, trade, and public interest organizations were contacted by phone. These organizations either responded to a survey of 12 questions during this contact, or they mailed comprehensive materials regarding conferences they sponsor or participate in regularly. Next, publications like the EPRI Journal and Energy Meetings (a DOE publication) were reviewed to identify additional conferences. The inventory of conferences was then distributed to several energy professionals for their

review and assistance in further identifying conferences. All conferences that appeared to support the RCCP mission, however marginally, were retained in the inventory to ensure that no relevant conference was excluded. Most of the conferences were scheduled for 1987, thus representing one year's sample.

The resulting inventory of 65 conferences indicates that RCCP's primary audiences are targeted by 60% of the conferences. Among primary audiences, utilities are served by more than half (52%) of the conferences, while RCS program planners, managers, and implementers in states, and state energy offices, in general, are targeted by only 19% and 26%, respectively (Figure 3.3). (Typically, state and utility RCS program planners, managers, and implementers are key audiences for the same conferences.) State utility regulators are served by 13% of the conferences. One or more of RCCP's secondary audiences are targetted by 77% of the conferences, and tertiary audiences are targetted 32% of the time. Rarely does a conference serve a single audience.

Conferences tend to focus on residential and commercial end-use sectors (Figure 3.4). The residential sector is dealt with by 70% of the conferences. The commercial sector is a focus in 67% of the conferences, and the nonprofit and industrial sectors are addressed by 47% and 36%, respectively. A review of the agendas of these conferences indicates that RCCP's three targeted micromarkets are rarely a major focus, although they are occasionally discussed. This suggests that a logical step for RCCP is to attempt to influence the agendas of key conferences to ensure that attention is given to these end-user groups.

Conference organizers and their audiences seem to prefer the most interactive methods of delivering conference content. Discussions of issues and the development of skills are stressed in 43% of all conferences. Case

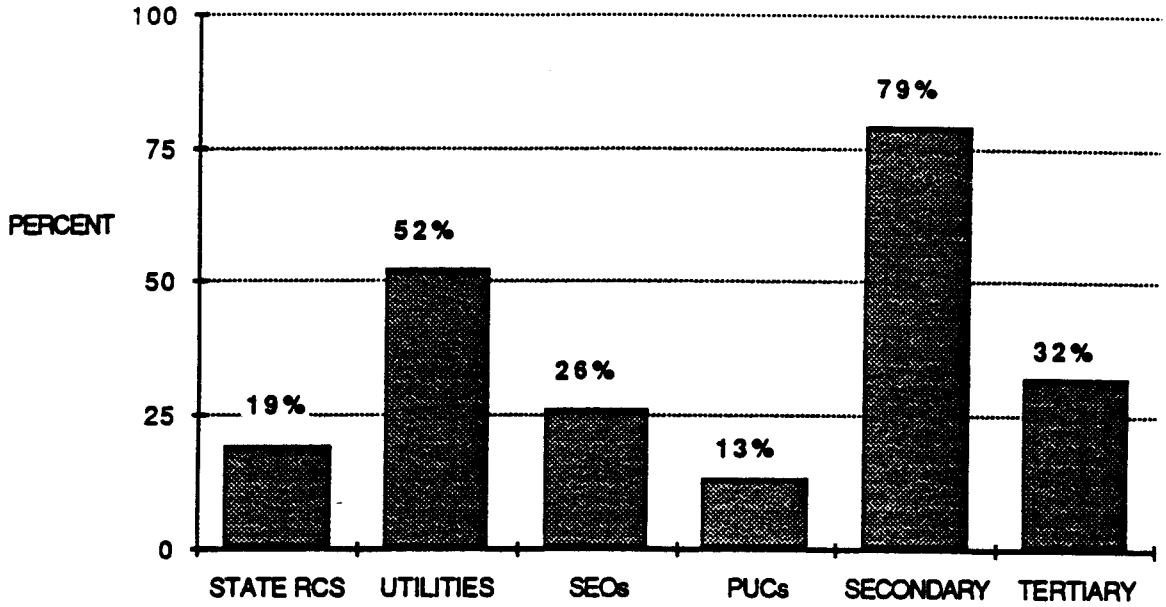

Fig. 3.3. RCCP primary audiences served by 65 energy conferences.

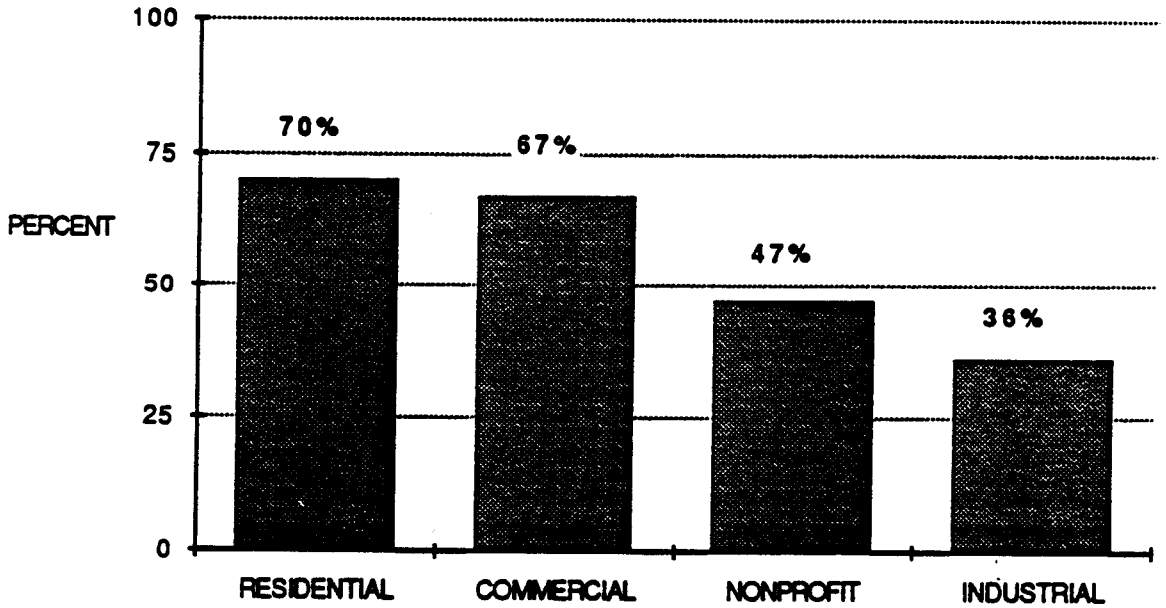

Fig. 3.4. End use sectors addressed by 65 energy conferences.

studies/lectures and panels/seminars are used in 28% and 27% of all conferences, respectively.

In terms of subject material, energy conservation applications (e.g., thermal storage technologies and energy conservation program design) are the focus of 30% of the conferences, and are usually delivered to audiences via the more interactive formats. Energy conservation concepts (e.g., partnerships and networking) are the focus of 43% of the conferences. Energy issues and policies are the focus of 20% of the conferences.

Some conferences furnish only an agenda. Others provide products such as training materials (16% of the conferences), exhibits (36%), minutes, and programs that are limited in distribution and impact to attendees. Most conferences allow attendees to distribute brochures and other handouts - offering RCCP a means of reaching conference participants in addition to more active forms of presenting information. On the other hand, nearly 40% of the conferences publish proceedings which are presumably available to nonparticipants, indicating a broader impact and suggesting an effective outlet for RCCP products. Nearly 36% of the conferences also provide some space for exhibits, offering another vehicle for RCCP technology transfer.

In view of RCCP's current and evolving role, the future conferences that are most appropriate for RCCP support address program implementers' and energy intermediaries' needs and concerns and that also focus on (1) low-income WAP ineligible homeowners, (2) middle-income homeowners, and (3) the owner- and renter-occupied small commercial end-use sector. Additionally, conferences with interactive formats (e.g., issue discussion and skill building), and which also produce training materials or comprehensive proceedings offer the most constructive settings for technology transfer.

A recent survey conducted for DOE's Energy Management and Extension Division also gives insight into the types of conferences RCCP might leverage (Morell, et al., 1987). Nearly 300 state-level conservation program personnel were asked to provide their views on technical assistance. The following results emerged:

- Respondents indicated a clear preference for conferences which concentrate on narrow, well-defined topics that are relevant to their specific needs, rather than general topics.
- Respondents also sought conferences and workshops which allow for audience participation, either by a "hands-on" format, time for questions and answers, or peer exchange.
- Those surveyed listed "expert presenters" (persons who both knew their material and could present it well) as being very important to the success of a conference.
- Finally, 53% of the respondents indicated that availability of travel funds is an important factor in determining whether or not they attend a conference.

3.3 EVALUATING PROGRESS

Evaluation is an integral part of the process of developing and refining a technology transfer strategy. Evaluation allows RCCP to capitalize on lessons learned from past technology transfer activities and to systematically determine whether objectives are being realized and how RCCP can be even more effective.

3.3.1 Special Evaluation Issues

Evaluations of technology transfer activities are subject to many challenges. For instance, it is frequently difficult to differentiate between the concept being transferred and the process of delivery (DeLeon, 1984). A technology transfer effort can only be successful if the concept being transferred meets the needs of the intended audience. An outreach program

could fail because the message being promoted is inappropriate, and not because of the nature of the outreach activities.

Such problems have at least partial solutions beginning with the establishment of evaluation criteria when a technology transfer strategy is first implemented to increase the probability of detecting program effects (DeLeon, 1982). The choice of evaluation design (Dunn et al., 1984), and the extent to which the design can eliminate potential rival hypotheses (Cook and Campbell, 1979) are also important evaluation issues to address. Other issues encountered when evaluating technology transfer progress and success are summarized below.

Is evaluation relevant? Formal evaluation is not always needed to assess impacts. Feedback could be overwhelming to the extent (positive or negative) that evaluation is a moot issue.

Was the technology transfer approach appropriate for the intended audiences? For instance, an audience might be approached through brochures and workshops, and a subsequent evaluation could determine if this combination was effective.

Was the technology transfer approach appropriate to the concept being transferred? Report briefs may be sufficient for transferring fairly simple concepts, but less useful as an education tool for complex R&D products such as the ASEAM-2 software. Evaluations can help to determine whether or not an outreach effort is suitable for a particular concept.

Should progress be measured qualitatively or quantitatively? No single evaluation approach is suitable for analyzing all technology transfer activities. Section 3.1 on needs assessment identified a number of techniques that can be used in evaluating activities. Measuring the number of

copies of a report requested or calls for technical assistance by RCCP's audiences will in many instances, be a good indicator of successful outreach. In other instances, process evaluation may be required to determine the usefulness of the information.

The intent of a process evaluation is to look at the qualitative aspects of a program to determine what needs to be changed to improve the results. Unfortunately, there is no standard format for process evaluations - some of them concentrate on marketing aspects, some concentrate on identifying external influences that play a role in the outcome. Process evaluations often use the techniques described in the needs assessment section along with review of historical documents. These evaluations are used to help redesign the program to be more effective.

What impact has the technology transfer activity had? The "attribution problem" plagues any evaluation of technology transfer activities. It is very difficult to separate the impacts of technology transfer activities from the influence of the technology itself and market conditions.

3.3.2 Methods of Evaluating Progress

At the project level, evaluations use many of the same techniques as needs assessments, but they seek more in-depth information about what actually happened rather than what could happen. At the program level, evaluations are similar to needs assessments because the focus is still on identifying the activities that should be supported, and more generally on how well past activities have accomplished their goals.

Figure 3.5 lists some of the methods that can be used for either assessing needs or evaluating progress, along with their advantages, disadvantages, and appropriate situations for use.

Methods	Advantages	Disadvantages	Appropriate situations
Technical assistance interest surveys	• Quantifiable • Reliable, in-depth information for planning/evaluation	• Relatively expensive and time-consuming • Low response rates may be problematic	• When comprehensive project/program issues need to be addressed
Focus groups and rap sessions	• Interactive • Results are immediate • In-depth information	• Validity of information is based upon effective session management • Generalizing may be problematic	• Early in project
Interviews	• Specific, detailed information	• Cannot be generalized	• When answers are needed to specific questions • Problem definition
Post-use analysis	• Can be routinized • Low-cost • Quantifiable	• Low response rate may be problematic • Validity of information	• On recurring basis after technology has been transferred for use
Review committees	• Low-cost • Ongoing--parallels project/program operation	• Time-consuming • Involves long-term commitment	• All situations
Invitational roundtable	• Expert advice • Program based	• Time horizon limits use on current issues • Possible problems of bias	• For addressing policy issues and long-term strategies

Fig. 3.5. Methods of assessing needs and evaluating progress.

3.3.3 Recommended Evaluation Activities

At a minimum, the following information should be monitored for each significant project:

- the number of requests for information or technical assistance;
- the amount and type of media coverage (e.g., a clipping file);
- the number of reports and report briefs mailed out; and
- the number of presentations made, by type of audience.

Much of this information is already being gathered through the use of the RCCP Utilization Recordkeeping effort. For significant projects, managers should also consider:

- distributing feedback cards or short surveys with each major document or technical assistance effort in order to assess usage and usefulness;
- collecting information on organizations that have adopted program recommendations to determine the results they have achieved; and
- obtaining feedback from project review committees.

Some efforts (such as the development of ASEAM-2) may warrant much more formal evaluation which can be conducted through surveys and focus groups. RCCP might consider asking participants in the program needs assessment roundtable which project they would like to see subjected to a full-blown cost-benefit and process evaluation.

At the program level, a user survey of RCCP's primary audiences should be conducted periodically to obtain feedback on the usefulness of the array of RCCP projects and the uses to which they have been put. This evaluation approach will also address the level of awareness and interest audiences have in what RCCP is doing. The short- and long-term goals of different technology transfer activities dictate, to some extent, the evaluation strategy and the evaluative criteria (e.g., energy savings, user satisfaction, market penetration, program implementation, cost effectiveness, or attitude change) to be used.

4. IMPLEMENTATION

4.1 RCCP'S CURRENT TECHNOLOGY TRANSFER ACTIVITIES

Appendix B itemizes past technology transfer activities undertaken by program staff to promote use of their research results. With the concurrence of RCCP project managers, significant additional activities may be undertaken by national laboratory and subcontractor staff who work on projects for RCCP. The appendix indicates that the primary technology transfer mechanisms relied upon to date have been the distribution of research analysis reports and presentations of findings at conferences.

4.2 RCCP STAFF VIEWS ON TECHNOLOGY TRANSFER

The RCCP staff were surveyed to determine their views on the challenge of transferring technology developed or fostered in their program. The following general recommendations and issues emerged from this informal survey:

- concern that staff internalize the importance of technology transfer to the RCCP mission as an assistance program and the need for concentrated attention by project managers to their technology transfer activities;
- need for better staging and coordination of dissemination activities; and
- need to establish a means of communicating with utilities and states on a regular basis.

The proposed technology transfer strategy described in section 4.3 responds to these recommendations and draws from the discussions found in earlier chapters of this report.

4.3 A PROPOSED TECHNOLOGY TRANSFER STRATEGY FOR RCCP

Since RCCP is just beginning a visible and coordinated technology transfer program, the recommendations in this report are limited to low- and

moderate-cost activities, and to a two-year time frame (FY 1988 and 1989). They are aimed at providing a strong foundation on which RCCP can add efforts in the future as new needs emerge.

4.3.1 Technology Transfer at the Project Level

A typical technology transfer strategy at the project level should involve a combination of mechanisms, implemented in a coordinated, tailored fashion to fit RCCP project results, CSRA requirements, the audience segments, and the context in which the transfer is conducted. Figure 4.1 offers a prototype strategy to guide project managers. The targeting of audiences by RCCP should evolve over time in a staged fashion moving from an initial focus on innovators and opinion leaders to a more general focus on the majority of program implementers and energy intermediaries. This transition and targeting strategy reflects the varying responsiveness of different market segments and recognizes that some individuals and organizations have more influence over subsequent adoption of conservation measures and programs than do others.

For most projects, RCCP should rely on highly personal communications with target audiences during the initial stages of technology transfer (as through project review committees). This should gradually shift to a more impersonal outreach (as through broad-based media coverage) as acceptance and use become more widespread.

Finally, the prototype strategy begins with an assessment of needs and ends with an evaluation of progress, although both of these activities may occur on an ongoing basis.

To further assist project managers in the design of their strategies, and to ensure that sufficient attention is given to technology transfer, we

Status of results and concepts to be transferred:

Initial introduction (Stage 1 results dissemination)	Evolution of concept (Stage 2 results dissemination)	Mature concept & and findings (Stage 3 results dissemination)
•Project review committee •Needs/market assessment •Personal interaction with innovators & opinion leaders •Subsidized pilot programs •Cost-shared evaluation of the concept or demonstration project •Technical report documenting implementation details and outcomes •Endorsement by trade and professional associations •DOE endorsement, award/citation •RCCP is primary promoter	•Testimonials of successfully implemented concept •Peer exchange between innovators, opinion leaders, and others •News releases, report briefs, fact sheets, newsletters, broadcast and targetted mailings citing contacts for more information •Presentations and discussions at conferences and workshops •Innovators & opinion leaders are primary promoters	•Articles in trade journals •Fact sheets and newsletters •Broadcast mailings •Conferences and exhibits •Evaluation of progresss •"Industry" is primary promoter

Fig. 4.1. A proposed technology transfer strategy for RCCP projects.

have developed a set of seven technology transfer worksheets for use by project managers (Appendix C). These worksheets provide a structured way for project managers to consider the following information when designing a technology transfer strategy:

- the type of results being transferred;
- audiences, associations, and networks to be targeted or used;
- mechanisms to be employed at different stages to reach each audience;
- needs assessment and evaluation methods to be used; and
- an estimation of the amount of funding required for technology transfer.

The seventh worksheet ("Putting it all together") is perhaps the most important and is certainly the most complex. It helps the project manager to plan a technology transfer strategy encompassing several stages. (More or fewer stages may be appropriate depending on the nature of any particular project.) Project results emerging at each stage are noted; targeted audiences are identified; and transfer mechanisms are listed along with the audiences which the mechanisms will be used to reach. Thus, explicit links are made between transfer mechanisms and audiences. Ideally, the form would also link audiences and transfer mechanisms with specific results. Unfortunately, that would require a third dimension or a much larger form.

Figure 4.2 uses the seventh worksheet to document how the RECAP project's results have been transferred to date. While this form has been completed retroactively, the example illustrates how the form can be used to plan a technology transfer effort.

Despite the apparent rigidity of the seven worksheets, it is important to keep in mind that technology transfer activities need to be flexible. They should be able to accommodate the emergence of unanticipated results and other changes including evolving audience needs.

PROJECT TIME-LINE
SHARED SAVINGS PROGRAM (RECAP) EVALUATION

Project planning/ needs assessment	Execution of project	Stage 1 results dissemination	Stage 2 results dissemination	Stage 3 results dissemination and evaluation

RESULTS & CONCEPTS TO BE TRANSFERRED

1. Implementation (marketing strategies, eligibility, criteria, financing)
2.
3.

1. Program Performance (participation rates, energy savings, "takeback" effects)
2.
3.

TRANSFER MECHANISMS & NETWORKS TO BE USED

1. Informal telephone contacts
2. Discussions at conferences
3. Personal letters
4. Commitment by GPU to cost share

1. Informal telephone contacts
2. Discussions at conferences
3. Distribution of first technical report
4.

1. Conference presentation (Great Energy Expo)
2. Meeting Energy Challenges
3. Chapter in Financing Energy Conservation
4.

1. Distribution of second technical report
2. Distribution of report brief
3. Briefing to SEOs
4. Third National Utility Conference

1. Media pickup
2. Mailing reports upon request
3. E&PA article
4. All States Conference

AUDIENCES TO BE TARGETED
(draw arrows between transfer mechanisms and intended audiences)

1. Utility innovators
2.
3.
4.

1. Utilities
2. ESCOs
3. State PIs
4.

1. Utility PIs
2. ESCOs
3. State PIs
4.

1. Utility PIs
2. State PIs
3. Utility regulators
4.

1. Researchers
2. State PIs
3. Utility PIs
4. Utility regulators

$ _____ $ _____ $ _____ $ _____ $ _____

Fig. 4.2. Putting it all together: an example based on the RECAP project.

4.3.2 Technology Transfer at the Program Level

RCCP also needs to implement a technology transfer approach for the program as a whole. The technology transfer activities of RCCP project managers should be supplemented and coordinated by activities that are planned and implemented at the program level. Six major activities are suggested below; several of these are direct extensions of current activities.

(1) Co-sponsor national and regional meetings that target RCCP's primary audiences.

As our conference inventory showed, numerous conferences are held each year that target RCCP's primary audiences, particularly, and to a lesser extent state utility regulators and state energy offices. RCCP should support a subset of these conferences, carefully selected to provide balance in terms of the regions represented, audiences served, and topics discussed. An effort should be made to encourage the inclusion of agenda items relevant to RCCP's three targeted micromarkets.

(2) Sponsor an Annual Program Managers Invitational Roundtable.

The purpose of these roundtables would be to provide general direction and support to the program. The roundtables should be composed of representatives of many of the trade and professional associations serving RCCP's primary audiences, as well as innovators and opinion leaders from State Energy Offices, utilities, and utility commissions. Roundtables should occur at least once a year.

(3) Develop a standard package for RCCP products, using the current graphic (or a variation on it) to enhance recognition.

This task will provide name recognition to RCCP, thereby enhancing usage of the program's products. Each package should contain some combination of RCCP reports, report briefs, results utilization sheets, and program and technology performance updates. A skilled communications specialist may need to be brought on board to assist in the design of the package. Mailing out such packages to RCCP's distribution list on a bimonthly basis would appear to suffice as a means of developing name recognition and attention to the program's results. The packages could also be distributed at conferences and meetings.

(4) Expand RCCP's working relationships with the trade and professional organizations serving RCCP's three audiences.

Such a working relationship would help RCCP capitalize on existing networks to reach its audiences with the results of relevant projects. Selected trade and professional organizations could also assist RCCP with needs assessments, project planning, and project evaluation.

To develop and maintain these working relationships, RCCP could require that each of its staff members establish regular contacts with one or two of the most important associations and information dissemination organizations. Thus, while one RCCP staff person manages the RCCP technology transfer effort, other RCCP staff share the responsibility for facilitating technology transfer through existing networks. The ultimate success of this approach is dependent on close communication among RCCP staff, so that the benefits from these contacts can be shared across projects and by the program as a whole.

(5) Develop an "intake" and "processing" system to support RCCP's role in the dissemination of findings from relevant research conducted by other organizations.

RCCP does not currently have a system for collecting and digesting information from self-reporting states and utilities and from other organizations conducting related research and programs. In the future, it may be useful for RCCP to consider establishing an actual data base of such research, reports and program experience. However, since the establishment of such a system would be a major undertaking, RCCP should institute a modest and highly focused effort during the next fiscal year, and reconsider at the end of that time whether engaging in a much larger effort would benefit its programs and clientele. In particular, it is recommended that during the first few years, RCCP focus on identifying, collecting, and disseminating information about a small number of technologies, program types, and audience segments. These could form building blocks for a larger data base effort in the future, should that be desirable.

As this information is collected, a written or verbal forum could be developed to discuss its implications. The information and discussions could be distilled into key lessons that could be disseminated in a variety of different ways.

Some possibilities for conducting such a forum would be:

- open up an exchange in such publications as Conservation Update and Home Energy;
- hold in-person or teleconference discussions with the various RCCP advisory groups that deal with applicable projects;
- create sessions to discuss relevant topics at several conferences; and
- bring successful program implementers into DOE to discuss their programs and their recommendations for others who might want to undertake a similar activity.

Some possibilities for disseminating the information after it has been distilled and discussed would be:

- create feature stories, press releases and/or regular columns that could be used by such publications as Conservation Update, Home Energy, Public Utilities Fortnightly, and Energy User News;
- develop fact sheets modelled after the EPRI approach describing applications of a technology or concept by a specific user or group of users;
- develop a refereed series of papers on a particular topic, program type or audience-specific activity; and
- develop generic utility bill stuffers that could be used by utilities to promote audience-specific information about technologies or programs, if appropriate.

These techniques could also be used to disseminate results from other RCCP efforts.

(6) Conduct research into what motivates RCCP's primary audiences to undertake energy conservation programs and what it will take to motivate the targeted end-use sectors.

RCCP needs to have a good understanding of how these groups make decisions and what influences their decisions. Program implementers and energy intermediaries also need to have a better understanding of the decision-making process that RCCP's target audiences follow in order to better design programs that will appeal to them.

RCCP should conduct research on the process by which its primary audiences come to adopt and design new energy programs. For instance, what roles are played by innovators and opinion leaders? Which of the organizations representing RCCP's primary audiences are strong opinion leaders? The types of research that could be used for this purpose are outlined in Section 3. We recommend initially that a secondary literature search be conducted to determine what research has already been done on utility and

other primary audience decision-making. Based on the results of this review, a primary research effort can be designed to gather information more effectively and to better influence these organizations to adopt the most successful kinds of programs for promoting energy conservation.

The program should also probe further into the energy-related needs of its targeted end-use sectors in order to provide better direction to program implementers and energy intermediaries. Why haven't they responded to earlier efforts? Who influences them the most in their energy-related decisions? A similar research approach to that outlined in the previous paragraph should be used here as well.

4.4 ORGANIZATIONAL STRATEGY

The implementation of the RCCP technology transfer plan requires that RCCP project managers ultimately be responsible for transferring the results of the projects they manage. As the staff members most closely associated with the projects, they are best equipped to make decisions about the use of results and applicability of results to specific audiences. The position of RCCP Technology Transfer Manager has been established to support the efforts of project managers and ensure adoption of program-level technology transfer. The RCCP Technology Transfer Manager's responsibilities should include:

- coordination of technology transfer projects;
- oversight of technology transfer activities of the RCCP project managers;
- support for program level technology transfer efforts; and
- targeted support to project level technology transfer, when requested and as appropriate.

The effective implementation of this technology transfer plan requires ongoing coordination and mutual support between the RCCP Technology Transfer manager and project managers. For the plan to succeed, adequate resources and upper-level management support must also be available.

Finally, an ability to respond quickly to requests for information, cosponsorship of conferences, and cost-sharing of programs and evaluations would greatly enhance RCCP's technology transfer.

4.5 CONCLUSIONS

This plan describes a technology transfer strategy that supports both the mandatory and voluntary aspects of the Residential and Commercial Conservation Program. It recommends a highly leveraged approach relying on existing networks and outreach opportunities to assess audience needs, disseminate project results, and evaluate progress. At the same time, it stresses that technology transfer activities need to be flexible and ongoing to accommodate RCCP's evolving role, energy conservation program and technology developments, and changing audience needs.

5. REFERENCES

American Consulting Engineers Council. 1987. ASEAM-2: A Simplified Energy Analysis Method (Washington, D.C.: ACEC Research and Management Foundation). October.

Auchenbach, P. R., W. W. Seaton, and W. T. Flynn. 1985. Proceedings of Building Industry Roundtable on Technology Transfer and Research Utilization (Washington, D.C.: American Society of Heating, Refrigeration and Air-Conditioning Engineers, Inc.). April.

Berry, L. G., M. Hubbard, and D. L. White. 1986. A Review of Financial Incentive, Low-Income, Elderly, and Multifamily Residential Conservation Programs (Oak Ridge, Tenn.: Oak Ridge National Laboratory). ORNL/CON-206. September.

Brown, M. A. and G. Reeves. 1985. The Implementation Phase of a Residential Energy Conservation Shared Savings Program: The General Public Utilities Experience (Oak Ridge, Tenn.: Oak Ridge National Laboratory), ORNL/CON-187. July.

Brown, M. A. and D. L. White. 1987. Impact Analysis of a Residential Energy Conservation Shared Savings Program: The General Public Utilities Experience (Oak Ridge, Tenn.: Oak Ridge National Laboratory), ORNL-CON 217. February.

Brown, M. A., L. G. Berry, D. L. White, and P. Zeidler. 1986. The Role of Auditor Sales Effectiveness in Residential Conservation Incentive Programs: A Case Study of Florida Power and Light (Oak Ridge, Tenn: Oak Ridge National Laboratory), ORNL/CON-201. August.

Burkhart, Lori A. 1987. "Least-cost Planning: A State Survey," Public Utilities Fortnightly. May 14, p. 38.

Centaur Associates, Inc. 1986a. Information Dissemination Plan (Washington, D.C.: Arawak Consulting Corporation).

Centaur Associates, Inc. 1986b. Guide to Energy Efficiency Information Services for the Residential and Commercial Sectors (Washington, D.C.: Arawak Consulting Corporation). December.

Cook, T. and D. Campbell. 1979. Quasi-experimentation (Chicago: Rand-McNally).

DeLeon, P. 1982. "The Evaluation of Technology R&D: A Continuing Dilemma," Research Policy, 11: 347-57.

DeLeon, P. 1984. "The Evaluation of Innovation," Policy Studies Review, 3: 483-90.

DHR, Inc. 1986. Information Dissemination Plan (McLean, VA: DHR, Inc.). November.

Doctors, S. 1968. Role of Federal Agencies in Technology Transfer. MIT Press, Cambridge, Massachusetts.

Dunn, W., M. Dukes, and A. Cahill. 1984. "Designing Utilization Research," Knowledge: Creation and Diffusion, 5: 387-404.

Elkin, S. L. 1983. "Towards a Contextual Theory of Innovation," Policy Sciences, 15: 367-87.

Feller, I. and D. C. Menzel. 1977. "Diffusion Milieus as a Focus of Research on Innovation in the Public Sector," Policy Sciences, 8: 49-68.

Investor Responsibility Research Center. 1987. Generating Energy Alternatives: Demand-Side Management and Renewable Energy at America's Electric Utilities (Washington, D.C.: Investor Responsibility Research Center).

Kearney/Centaur Division, A. T. Kearney, Inc. 1987. "Case Study of the North Carolina Alternative Energy Corporation," A. T. Kearney.

Millstein, Jeffrey S. 1977. "Attitudes, Knowledge and Behavior of American Consumers Regarding Energy Conservation with Some Implications for Governmental Action," Advances in Consumer Research, Perrault, W. D., ed. (Ann Arbor, Michigan: University of Micnigan), 4: 315-321.

Mohler, Bryan. 1987. "Why Utility Marketing Procedures Aren't as Effective as They Could Be," Demand-Side Management Strategies in Transition (Palo Alto, California: Electric Power Research Institute), pp. 60.1-60.11.

Morell, J. A., et al. 1987. Analysis of Technical Assistance Provided by the Department of Energy's Energy Management and Extension Division, (Oak Ridge, Tenn.: Oak Ridge National Laboratory), unpublished.

Morgan, Stephen J. 1988. Weatherizing Homes in Portland: An Evaluation of a Community-Based Partnership Residential Conservation Pilot Program, (Oak Ridge, Tenn.: Oak Ridge National Laboratory), ORNL/Sub/85-06613/1, February.

O'Brien, T. C., and L. M. Franks. 1981. "Evaluation Framework for Federal Technology Transfer Initiatives," Journal of Technology Transfer, 6(1): 73-86.

Radosevich, R. 1977. "Designing Innovative Systems," Long Range Planning, 10(2): 79-84.

Rogers, Everett M. 1983. Diffusion of Innovations. Third edition, (New York: The Free Press).

Science Applications, Inc. 1983. Proceedings of the Building Energy Research Workshop, prepared for the Committee on Science and Technology, U.S. House of Representatives. U.S. Government Printing Office, Washington, D.C.

Stern, P. C., L. G. Berry, and E. Hirst. 1985. "Residential Conservation Incentives," Energy Policy, X: 133-142.

APPENDIX A

Inventory of Conferences

Table A-1. Inventory of Conferences.

CONFERENCE	SPONSOR/CONTACT	SCHEDULED	LOCATION	AUDIENCE[a]	ENDUSE SECTOR	FORMAT	TECHNOLOGY	PRODUCTS
Pacific Energy Conference	Commonwealth Energy Office and Chamber of Commerce / (670) 322-9229	7/12-15/87	Saipan	SECONDARY (Private Sector); TERTIARY (State offices)	C/I	SB	ECAs	Exhibits
Annual Meeting of the National Society of Professional Engineers (NSPE)	NSPE / Jean Robertson	7/12-18/87	Denver	SECONDARY; TERTIARY	ALL	P/ID	ECAs	Proceedings
National Governors' Association (NGA) Semi-annual Meeting	NGA / (202) 624-5300	7/27-29/87	Traverse City, MI	TERTIARY (State offices)		ID/S	Issues	
Residential Energy Auditing	College of Engineering, University of Wisconsin /	7/27-31/87	Madison, WI	UTILITIES: RCS	R	SB/S	Audits	Tutorials
Indoor Air Quality and Climate	ASHRAE et al / Judy Marshall (404) 636-8400	8/17-21/87	West Berlin	SECONDARY	R/C	S	ECAs	Proceedings Exhibits
International Evaluation Conference	DOE/BPA/et al/ Gail Ettinger, ANL, (312) 972-7792	8/18-21/87	Chicago	RCS; SEO; UTILITIES; PUC; SECONDARY (State offices; Federal Agencies)	ALL	CS	ECPs	Proceedings
Far East Conference on Air Conditioning in Hot Climates	ASHRAE / Judy Marshall (404) 636-8400	9/3-5/87	Singapore	SECONDARY	ALL	SB	ECAs, ECMs	Proceedings

Table A-1. Inventory of Conferences (continued).

CONFERENCE	SPONSOR/CONTACT	SCHEDULED	LOCATION	AUDIENCE[a]	ENDUSE SECTOR	FORMAT	TECHNOLOGY	PRODUCTS
Annual Review of DSM Research	EPRI / Maureen Lenihan (415) 855-2127	9/9-11/87	Houston	UTILITIES	ALL	SB/ID	ECCs	Proceedings
Energy Seminar	GRI /	9/9-12/87		UTILITIES (gas)	ALL	/SR		
Fourth Annual Symposium on Improving Building Energy Efficiency in Hot and Humid Climates	Texas A&M/Texas/ PUC/LBL /	9/15-16/87	Houston	SECONDARY (Private Sector)	Primarily C	CS	ECAs (cooling)	Proceedings
All-States Conference	DOE (EME) / Rick Klimkos	9/15-17/87	Smugglers' Notch, VT	SEO	ALL	SB/P/ID	ECCs (financing, ECPs	Proceedings marketing),
National Association of State Energy Officials (NASEO)	NASEO / Annette Osso (202) 639-7792	9/15-17/87	Smugglers' Notch, VT	SEO (Directors)		ID/S	Issues	Minutes
Ninth Annual Industrial Energy Technology Conference	Texas A&M/Texas PUC /	9/16-18/87	Houston	SECONDARY (Private Sector: Contractors, Manuafacturers/ Suppliers); UTILITIES	I	CS	ECAs	Proceedings Exhibits
Domicile '87 (Energy Efficient Building Association (EEBA))	EEBA / Jeanne Brownback (507) 285-8752 (507) 356-8723	9/20-28/87	Helsinki	UTILITIES; SECONDARY (Private Sector: Architects/Designers, Builders); TERTIARY (Educators and Reseachers)	Primarily R	S/SB	ECAs, audits, building	Exhibits

Table A-1. Inventory of Conferences (continued).

CONFERENCE	SPONSOR/CONTACT	SCHEDULED	LOCATION	AUDIENCE[a]	ENDUSE SECTOR	FORMAT	TECHNOLOGY	PRODUCTS
Electric Thermal Storage National Conference and Exposition	NYSERDA/NY State Electric & Gas Corporation /	9/22-24/87	Binghamton, NY	SECONDARY (Private Sector); UTILITIES; homeowners	R/C/I	P/ID/CS	ECAs	Exhibits
Meeting Customer Needs With Heat Pumps	APPA/EEI/EPRI/ NRECA / David Ross, Policy Research Associates, 12121 Basset Lane, Reston, VA 22091	9/23-25/87	New Orleans	UTILITIES; SEO; RCS	R/C	S/ID/CS	ECAs, ECMs	Proceedings Exhibits
10th World Energy Conference	AEE (Association of Energy Engineers) / Al Thurman (404) 447-5083	9/28/87-10/2/87	Atlanta	SECONDARY (Private Sector: Manufacturers/Suppliers); UTILITIES; SEO	ALL			
Building Energy Management	ASHRAE et al / Judy Marshall (404) 636-8400	9/28/87-10/2/87	Lausanne	SECONDARY	C/I	S/CS/SB	ECCs	Proceedings Exhibits
Power Generation Conference	IEEE/ASME / (212) 705-7037	10/4-8/87; 10/2-6/88.	Miami; Philadelphia.	SECONDARY (Private Sector); UTILITIES; PUC		P/ID/CS	Issues, ECAs	Proceedings
Annual Convention of Insulation Contractors Association of America (ICAA)	ICAA / (301) 926-3083	10/7-9/87	DC	SECONDARY (Private Sector)	R/C	S/ID	ECAs, Issues	Proceedings Exhibits
Building Codes and Standards	AGA /	10/20-22/87	New Orleans	SECONDARY (Private Sector);	ALL	ID	ECCs	

Table A-1. Inventory of Conferences (continued).

CONFERENCE	SPONSOR/CONTACT	SCHEDULED	LOCATION	AUDIENCE[a]	ENDUSE SECTOR	FORMAT	TECHNOLOGY	PRODUCTS
NAESCO 4th Annual Conference	NAESCO / Bill Prindel (202) 955-9795	10/21-23/87	DC	SECONDARY (Private Sector: ESCO, Lenders); UTILITIES; RCS	ALL	ID/P	Issues	Newsletter
First National Conference on Appliance Efficiency	ACEEE / (202) 429-8873	10/26-28/87	Arlington, VA	SECONDARY (Private Sector: Manufacturers/Suppliers); RCS; UTILITIES	Primarily R	S/SB	ECCs (rebates, ECP design)	Tutorials, NO exhibits
Condensation and Related Moisture Problems in the Home: A Tech Transfer Symposium	American Association of Housing Educators / Kathleen Parrott (402) 472-2914	11/2-3/87	Newport, RI	SECONDARY (Private Sector); UTILITIES	R	CS/P	ECAs, ECMs	
Annual Meeting of Association of Professional Energy Managers (APEM)	APEM/CA Energy Commission/PG&E / Dan Frederick (415) 973-2483	11/2-5/87	Anaheim, CA	SECONDARY (Private Sector)	C/I	L/ID	Issues	Exhibits (trade show)
Housing for the '90s	City of Tacoma/ Energy Business Assoc./Puget Sound Power and Light / (206) 622-7171	11/3-4/87	Tacoma, WA	SECONDARY (Private Sector); UTILITIES; SEO	R	SD/Demos	ECAs	Exhibits
National Association of Regulatory Utility Commissions (NARUC) Annual Meeting	NARUC / Michael Foley (202) 898-2214	11/16-19/87	New Orleans	PUC; RCS; UTILITIES (FSP); SEO; SECONDARY (Private Sector)	ALL	CS/ID/P	Issues	Proceedings Exhibits (limited)
National Weatherization Conference	DOE (WAP) / Elaine Calloway (202) 586-2204	12/1-3/87	Charleston, SC	SEO (residential); SECONDARY (Nonprofits; Local Gov't); TERTIARY (State offices); RCS	R	SB/ID	Issues,	Proceedings NO exhibits

Table A-1. Inventory of Conferences (continued).

CONFERENCE	SPONSOR/CONTACT	SCHEDULED	LOCATION	AUDIENCE[a]	ENDUSE SECTOR	FORMAT	TECHNOLOGY	PRODUCTS
44th Annual Conference and Exposition of the National Association of Homebuilders (NAHB)	NAHB / Jeannie Brown (202) 822-0473	1/15-18/88	Dallas	SECONDARY (Private Sector)	R/C	S/SB/Expo	Building	EXHIBITS
National Governors' Association (NGA) Semi-Annual Meeting	NGA / (202) 624-5300	2/00/88	DC	TERTIARY (State Offices)		P/ID	Issues	
46th National Rural Electric Cooperative (NRECA) Annual Meeting	NRECA /	2/7-10/88	New Orleans	UTILITIES (REC); SEO; RCS	Primarily R	L		Exhibits
American Power Conference	/ IL Institute of Technology R. E. Armington (312) 567-3406	4/25-27/88	Chicago			P/ID	Issues	Proceedings
The Great PG&E Energy Expo	PG&E /	TBA	TBA	UTILITIES; RCS; SECONDARY (Private Sector); SEO	C/I	P/ID	ECCs (DSM)	Proceedings Exhibits
Summer Study '88	ACEEE et al /	TBA	TBA	SECONDARY (Private Sector); TERTIARY (Educators and Researchers)	C	L/CS/ID	Issues	Proceedings
52nd Annual Conference and Exposition	EEI (Customer Services and Marketing Division) / Al Smith (202) 778-6400	6/1-3/88	San Diego	UTILITIES (IOU: CEO); SECONDARY (Private Sector)	ALL	L	ECCs (marketing)	Proceedings

Table A-1. Inventory of Conferences (continued).

CONFERENCE	SPONSOR/CONTACT	SCHEDULED	LOCATION	AUDIENCE[a]	ENDUSE SECTOR	FORMAT	TECHNOLOGY	PRODUCTS
Affordable Comfort II Conference	ACTION Housing/ ASE/AGA/et al / PA Energy Center (412) 391-1958	3/2-4/87	Pittsburgh	SECONDARY (Private Sector)		SB		Program Exhibits
Engineers Government Affairs Congress	ASHRAE et al / Jim E. Cox (202) 833-1830	3/3/87	DC	SECONDARY (Private Sector)	ALL	P/ID	Issues	Proceedings
Policy Makers' Workshop	APPA /	3/5-7/87	Scottsdale, AZ	PUC (Municipalities); UTILITIES (Publicly owned); SECONDARY (Local governments)	ALL	SB/ID	Issues	Training materials
Planning for the Community-owned Electric System	APPA / Andrea Griffin (202) 775-8300	3/16/87	Nashville	UTILITIES (Publicly owned, municipals)	ALL	SB/ID	Issues, ECCs	
International Energy Efficient Building Conference and Exposition	EEBA / (507) 285-8752	4/10-16/87	Minneapolis	SECONDARY (Private Sector)	R	CS/SB	ECAs	Exhibits
15th Energy Technology Conference	GRI/EPRI/AGA/ NCA / L. Fish (903) 841-8456	4/14-16/87; 3/21-23/88	DC	SECONDARY (Private Sector: ESCOs, Manufacturers/Suppliers); UTILITIES	ALL	S/P	ECAs, ECMs	Proceedings Exhibits
Institute on Energy and Engineering Education	ACEC / Alex Willman (202) 347-7474	4/21-24/87	Boulder, CO	TERTIARY (Educators and Researchers); SECONDARY (Private Sector)	C	CS/SB	Audits	Software, Tutorial

Table A-1. Inventory of Conferences (continued).

CONFERENCE	SPONSOR/CONTACT	SCHEDULED	LOCATION	AUDIENCE[a]	ENDUSE SECTOR	FORMAT	TECHNOLOGY	PRODUCTS
Coal Convention	Frances Eckert, American Mining Congress (202) 861-2800	5/3-6/87	Cincinnati	UTILITIES; PUC; SECONDARY (Private Sector); TERTIARY (Federal agencies, Educators and Researchers)	ALL	P/ID	Issues	Proceedings
1st Mid-year Conference and Exposition of	NAHB Jeannie Brown / (202)822-0473	5/15-17/87	DC	SECONDARY (Private Sector: Builders, etc.); TERTIARY (Educators and Researchers)	R/C	Expo/S/SB	Building	EXHIBITS
APPA National Conference	APPA / Daniel Lewis (202) 775-8300	5/18-20/87	San Antonio	UTILITIES (Publicly owned, municipals); RCS; SEO;	ALL	CS/SB/ID	Issues	
Practical Control of Indoor Air Problems	ASHRAE / Judy Marshall (404) 636-8400	5/18-20/87	Arlington, VA	SECONDARY	R/C	S/CS	ECAs, ECMs	Proceedings
National Association of Energy Service Companies (NAESCO) Mid-year Meeting (4th)	NAESCO / Bill Prindel (202) 955-9795	5/20-21/87	Minneapolis	SECONDARY (Private Sector: ESCO, lenders); UTILITIES; RCS; SEO	ALL	P/ID	ECAs (e.g., waste to energy)	NAESCO news-letter; NO exhibits
Resource Recovery Projects in the Public Sector	NAESCO / Terry Singer (202) 955-9600	5/20/87	Minneapolis	SECONDARY (Private Sector: ESCO); SEO; UTILITIES; PUC	C/I	P/S/CS	ECAs	
Maintenance Management	AEE (Association of Energy Engineers) / Alena McFarland (404) 447-5083	5/21-22/87	Atlanta	SECONDARY (Private Sector) UTILITIES	ALL	S/SB	ECMs, ECPs	

Table A-1. Inventory of Conferences (continued).

CONFERENCE	SPONSOR/CONTACT	SCHEDULED	LOCATION	AUDIENCE[a]	ENDUSE SECTOR	FORMAT	TECHNOLOGY	PRODUCTS
Socioeconomic Energy Research and Analysis Conference	DOE / Cynthia J. Booze (202) 586-5876	5/21-22/87	DC		R/C	CS/SB	ECPs	Proceedings
RETSIE/IPEC	WAPA/ASME/et al / Richard Green	6/1-4/87	Anaheim, CA	SECONDARY (Private Sector); RCS; SEO	ALL	CS	ECAs, ECMs, ECPs	Exhibits
Edison Electric Institute (EEI) Annual Convention	EEI / Mr. Mahoney (212) 573-8700	6/8-10/87 ; 6/13-15/88.	Cincinnati; DC.	UTILITIES (Electric: CEO); SECONDARY (Private Sector)	ALL	S/CS	ECCs (marketing)	NO exhibits
Fundamentals of Energy Auditing	University of Wisconsin, College of Engineering / Don Schramm (608) 263-7757	6/8-11/87	Madison, WI	UTILITIES; RCS	R/C (small)	SB/S	Audits	
Nonprofit Energy Conservation Project (NOPEC)	NOPEC / Scott Thigpen (212) 481-0240	6/10-12/87	Kansas City	SECONDARY (Nonprofits); UTILITIES; SEO	NP	CS/SB	ECCs (partner-ships)	Proceedings Exhibits
Fuel Funds Conference	NFFN (National Fuel Funds Network) / Sister Pat Kelley (314) 773-5900	6/15-16/87	Baltimore	SECONDARY (Nonprofits, local governments); TERTIARY (State offices)	R/C (small)	SB/CS	ECCs (networking)	
3rd National Conference on Utility DSM Programs	SRC (Synergic Resources Corporation) and 23 others / Diane Tracy (215) 667-2160	6/16-18/87	Houston	UTILITIES; PUC	ALL	CS/P	ECCs (implemen-tation results)	Proceedings (at site)

Table A-1. Inventory of Conferences (continued).

CONFERENCE	SPONSOR/CONTACT	SCHEDULED	LOCATION	AUDIENCE[a]	ENDUSE SECTOR	FORMAT	TECHNOLOGY	PRODUCTS
National Low-income Energy Consortium Conference	NFFN et al / Sister Pat Kelley (314) 773-5900	6/17-19/87	Baltimore	SECONDARY (Local government; nonprofits); TERTIARY (State offices)	R	SB/CS	ECCs (e.g., partnerships, networking)	
Energy Decision-Making for Uncertain	Stanford University / Susan Van Every (415) 725-1876	6/21/87-7/3/87	Stanford, CA	SECONDARY (Nonprofits, Private Sector: ESCO)	ALL	S/SB/ID	Issues, ECCs	Handbooks
Annual Conference of the Nonprofit Management Association (NMA)	NMA / Patty Oertel (213) 977-0372	6/22-27/87	Los Angeles	SECONDARY (Nonprofits)	NP	P/ID	ECCs, Issues	Proceedings
Building Owners and Managers Association (BOMA) Annual Convention	BOMA / Alton Penz (202) 289-7000	6/28/87-7/1/87	Toronto	SECONDARY (Private Sector)	C/I/R			
ASHRAE Annual Meeting	ASHRAE / Judy Marshall (404) 636-8400	6/28/87-7/1/87	Nashville	SECONDARY	ALL	S/P		Exhibits (books)
Institute of Electrical and Electronic Engineers (IEEE) Pulse Power Conference	IEEE / Wilfred T. Gerlach (212) 705-7895	6/29/87-7/1/87	Arlington, VA	SECONDARY		SB/CS	ECAs, ECMs	Training materials

Table A-1. Inventory of Conferences (continued).

CONFERENCE	SPONSOR/CONTACT	SCHEDULED	LOCATION	AUDIENCE[a]	ENDUSE SECTOR	FORMAT	TECHNOLOGY	PRODUCTS
Training Seminars	SRC (Synergic Resources Corporation) / Diane Tracy (215) 667-2160		Philadelphia	UTILITIES	ALL	SB/S	ECCs (marketing), ECPs	Tutorials, training materials
Developing Least-Cost Electrical Strategies for Your State	ECC (Energy Conservation Coalition (ECC) /		TBA	SECONDARY (Nonprofits); SEO; RCS; PUC; TERTIARY (State offices)	R	SB/L/ID	ECAs	Handbooks, NO exhibits
Marketing Your Services to Utilities	Center for Community Futures / James I. Masters (800) 843-2687	6/23-24/87; 7/8-9/87 ; 7/28-29/87; 8/11-12/87; 10/6-7/87 ; 12/15-16/87;	Los Angeles; DC ; San Francisco; Boston ; Seattle ; Atlanta ;	SECONDARY (Nonprofits, local government)	R/C	L/CS/ID/SB	ECCs (DSM)	Training materials

APPENDIX B

An Inventory of Current RCCP Technology Transfer Activities

OVERVIEW OF RECENT RCCP TECHNOLOGY TRANSFER ACTIVITIES

I. RCCP PROJECTS

A. Reports Disseminated: January 1985 - June 1986

1. Analysis of Conversation Practices (PEPCO) -- 3/85
2. Implementation of GPU -- 5/85
3. Utility/Small Business Cooperation -- 9/85
4. Tips for Apartments -- 8/85
5. Tips for Small Business -- 1/86
6. RCCP draft Strategic Plan -- 5/86

B. Reports Disseminated: July 1986 - June 1987

1. Alternative Program Designs (SRC) -- 11/86
2. Auditor Sales Effectiveness (FPL) --11/86
3. Residential Program Survey (ORNL) -- 11/86
4. RCS Evaluation Update -- 1/87
5. GPU Impact Analysis -- 4/87
6. WHIP Evaluation -- TBD
7. Reference Guide to Information Services -- 1/87
8. Report Briefs -- 1/87
9. 50/50 Commercial Feasibility -- TBD

II. RCCP PRESENTATIONS

A. Presentations/Conference Conducted: January 1985 - June 1986

1. 2nd National Utility Conference -- 5/85
2. Chicago Evaluation Conference Steering Committee -- 5/85
3. CACS National Program Conference -- 9/85
4. Information Services Liaison Committee -- 3/86
5. Strategic Plan Review -- 6/86

B. Presentations/Conferences Conducted: July 1986 - June 1987

1. ACEEE Summer Study -- 8/86
   - formal session on three reports
   - two informal sessions
2. Affordable Comfort II Conference -- 3/87
   - steering committee
   - session chair
   - presentation
   - informal session
3. 3rd National Utility Conference -- 6/87
   - steering committee
   - session chair
   - two presentations
4. Veneer/Plywood Association Workshops -- 4/87-6/87
5. Program Review Meetings with External Organizations -- 6/86 and 11/86
6. Information Services Liasion Committee -- 6/86 and 11/86
7. Overviews of RCCP Activities for Support Offices -- 7/86 and 1/87
8. Overview of RCCP Activities for Philadelphia/Atlanta Bi-regional Meeting -- 4/87

III. RCCP WORK IN PROGRESS

A. Projects

1. Utility Commercial Survey
2. NCAEC Study
3. EPRI Marketing Primer
4. State-Utility Coordination Study
5. SB/ESCO/Utility Project
6. NOPI Results
7. Strategies for the Elderly
8. Program Evaluation Assistance
9. ASEAM Dissemination
10. Audit Field Test
11. SCOBUS II
12. Resource Allocation Guide

B. Presentations/Conferences Currently Planned: July 1987 - November 1987

1. EPRI Marketing Workshops -- TBD
2. All States Meeting
3. APEM Annual Meeting

IV. TECH TRANSFER PROCEDURES/MECHANISMS INSTITUTED:
January 1987 May 1987

1. Information Dissemination Plan
2. RCCP Factsheet, Report Briefs, and Publications List
3. Monthly Mailing List Updates
4. Publications Section
5. RCCP Utilization Record (test)
6. RCCP Seminar Series
7. RCCP Technology Transfer Plan
8. Monthly OSLAP/BCS Meetings

APPENDIX C

Technology Transfer Worksheets

Title of Project: _____

Purpose of Project: _____

Purpose of Technology Transfer Effort: _____

_____

Implementation Results

Technology and Technique

Planning and Overall Management

Program Performance Results

Worksheet #1: Classification of RCCP results

PRIMARY AUDIENCES

STATES	UTILITIES

SECONDARY AUDIENCES

Local Governments	Private Sector Energy Professionals
Nonprofit and Civic Organizations	
	State Governments

TERTIARY AUDIENCES

Federal Agencies	Other State Offices
Educators and Researchers	

Worksheet #2: Primary, secondary, and tertiary audiences

PRIMARY ASSOCIATIONS

SECONDARY ASSOCIATIONS

Worksheet #3: RCCP's primary and secondary associations

News Media

Information Clearinghouses

Other Organizations with Networks

Worksheet #4: Other networks

•WORKSHOPS/ SEMINARS/ CONFERENCES	•INFORMATION DISSEMINATION CENTERS	•RADIO/ TELEVISION ANNOUNCEMENTS
•TECHNICAL ASSISTANCE (e.g., site visits & network building)	•MAILINGS (report briefs, information packets, fact sheets)	•VIDEOTAPES
•PEER EXCHANGES (e.g., visits to/from program implementers and energy intermediaries)	•TECHNICAL REPORTS	•DECISION TOOLS (e.g., computer software)
•COOPERATIVE R&D PROJECT	•NEWS RELEASES	•ELECTRONIC BULLETIN BOARDS
•PROJECT REVIEW COMMITTEES	•ARTICLES IN TRADE JOURNALS & MAGAZINES	•BANKS OF ENERGY PERFORMANCE DATA
•OTHER	•OTHER	•OTHER

Worksheet #5: Transfer Mechanisms

Needs Assessment Methods

Evaluation Methods

Worksheet #6: Needs assessment and evaluation methods

PROJECT TIME-LINE

Project planning/ needs assessment	Execution of project	Stage 1 results dissemination	Stage 2 results dissemination	Stage 3 results dissemination and evaluation

RESULTS & CONCEPTS TO BE TRANSFERRED

1.		1.		
2.		2.		
3.		3.		

TRANSFER MECHANISMS & NETWORKS TO BE USED

1.	1.	1.	1.	1.
2.	2.	2.	2.	2.
3.	3.	3.	3.	3.
4.	4.	4.	4.	4.

1.	1.	1.	1.	1.
2.	2.	2.	2.	2.
3.	3.	3.	3.	3.
4.	4.	4.	4.	4.

AUDIENCES TO BE TARGETED

(draw arrows between transfer mechanisms and intended audiences)

$ _____	$ _____	$ _____	$ _____	$ _____

Worksheet #7: Putting it all together