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Report to Attendees

Summary of Workshop

Buildings Energy Efficiency in the Southeast

Shenandoah Environment
and Education Center
Newnan, Georgia

June 8-9, 1992

prepared by

OAK RIDGE NATIONAL LABORATORY

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FOR MORE INFORMATION

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Introduction

On June 8-9, 1992, energy service providers from around the Southeastern United States gathered at the Shenandoah Environment and Education Center of Georgia Power Company in Newnan, Georgia, to discuss issues related to energy efficiency buildings in the region. The eighty-five participants included representatives of public and investor-owned utilities, energy service companies, regional research laboratories, local, state, and federal agencies, and others (Appendix A).

The meeting was organized by an ad hoc planning committee under the auspices of the Atlanta Support Office of the U.S. Department of Energy. The objectives of the Workshop were to provide a forum for regional energy service providers to discuss matters of mutual concern and to identify issues of particular relevance to the Southeast.

What characterizes energy use in the Southeast? Most lists would include rapid population growth, high temperatures and humidity, a large air conditioning load on utilities, a relatively clean environment, and regulatory processes that seek to keep energy prices low. There was less unanimity on what are the priority issues. No definitive list of priorities emerged from the workshop. Participants did identify several areas where work should be initiated: networking, training/ certification/education, performance of technical measures, and studies of market forces/incentives/barriers. The most frequently mentioned context for these work areas was that of utility programs.

Presentations given during the first morning provided attendees an overview of energy use in the region and of building energy conservation programs being implemented both by state agencies and by utilities. These were the base for breakout and plenary sessions in which attendees expressed their views on specific topics.

The regional need mentioned most often at the workshop was for networking among energy service providers in the region. In this context, this report itself is a follow up action. Participants also requested a regional directory of energy program resources. DOE agreed to assemble a preliminary directory based upon input from workshop attendees. Because the response was quick and positive, a directory is part of this document. The feasibility of other means of networking; e.g., a newsletter and a computer bulletin board are being explored. Input from readers on these matters would be appreciated.

The post-workshop survey (see Appendix B) strongly supported follow up sessions with more focused agendas. The Ad Hoc Steering Committee will meet soon to discuss alternatives identified by workshop participants.

Summary of Invited Presentations

Keynote Address, David Block, Florida Solar Energy Center (FSEC)

Mr. Block provided statistics on national opportunities for energy efficiency in buildings. He noted that the United States spends $500 billion a year on energy, and 36% or roughly $200 billion is for energy use in buildings (a figure similar to that for transportation but higher). More than 75% of new housing has air conditioning, and the fastest growing commercial electricity use is for air conditioning. As a result of this and other contributing factors, utilities are experiencing summer peak load problems, which is increasing interest in demand side management options. Block also noted the advent of trading of utility environmental emissions allotments among utilities. Innovative rate structures may be an option for utilities to show that energy efficiency opportunities and economics can coexist.

Block discussed research into radiant barriers and the use of heat pipes and desiccants at FSEC. The remediation of duct leakage is also an important area of recent work. FSEC is planning to build the world's most energy-efficient building as their new facility. This building, which is slated for construction in November 1992, will include a Visitor's Center, exhibits, and research laboratories and will be built about ten miles from the existing facility.

Regional Perspective - Technical Michael MacDonald, Oak Ridge National Laboratory

Mr. MacDonald discussed the results of a survey that he conducted prior to the Workshop and presented a technical perspective for the region (Appendix C).

He discussed the various geographical descriptions used for the Southeast, including those of the U.S. government agencies ("Region 4"), the Southern Governor's Conference, and the Southeast regulatory commissions' association (SEARUC). MacDonald described the range of organizations that participated in the survey and their responses. He summarized the concerns reflected by the responses, which became goals for the workshop. These included: "What efficiency measures can we (the region) use? What is effective? What do we know? How can we improve the general portfolio of measures?"

Regarding the potential for energy savings in the region, MacDonald estimated that at a rate of $6-10 billion for a quad of primary energy, as much as $500 billion could be invested in various energy-saving measures and still be recouped in energy savings (based on U.S. Department of Energy estimates of potential savings of 15 quads/year and a Southern share in this sum of 4-5 quads). In addition to the obvious economic benefits of such an aggressive goal, there would be environmental benefits. Buildings in Southeastern states alone may account for about 3% of worldwide total energy-related air emissions.

MacDonald stressed that the potential for successful programs in the region is great. For example, improved low income weatherization programs could potentially reduce energy use in low income homes by as much as 25%, versus 10% in many current programs. The residential low-income weatherization investment is $70 for 1 MBtu/year savings, or $0.20/kWh, in better programs. These savings compare with savings of $0.20-0.50/kWh for commercial lighting investment, and $0.03-0.90/kWh for investment in other

commercial measures. MacDonald noted that more and better information of this type is needed.

MacDonald commented that there are many uncertainties related to audits and program performance, and there are problems with building energy performance often not meeting expectations. There should be more reliance on measured results. There also may be difficulties with scaling from small programs to large ones.

MacDonald suggested that a "web of interactions" should be established between people working in the energy efficiency field, with this sharing of knowledge leading to improvements. As an example of knowledge that could be gained and shared in this manner, he noted the need for multiple tests of retrofits of new compressors and controls in existing air conditioning systems. which might be more cost effective than complete replacement of the system. Different tests could be performed by several organizations, with all the results pooled in a common report. Also, information on field tests and installation costs for different lighting technologies could be shared to reduce duplication of effort by different organizations.

Finally, MacDonald called for regional cooperation and detailed its benefits. Resources can be pooled to increase the benefits of demonstration. Pooled resources help to attract additional resources, including people, knowledge, and funding. Regional awareness reduces duplication of effort and improves distribution of responsibilities. The increased knowledge and level of organization resulting from this cooperation may help to direct national policy.

Regional Perspective
Building Conservation Programs,
Phil Whitlow, Georgia Office of Energy Resources (OER)

Mr. Whitlow discussed examples of OER's direct support efforts, including low income weatherization and work with facilities such as schools and hospitals. Low income residential programs affect as many as 4,500 households each year. The measures include infiltration control (about seven year payback) and ceiling insulation (about 6.9 year payback), with overall savings running at roughly 15% Whitlow reported. OER's work with public facilities includes about 30 projects a year, at $1.5 million. The Energy Management and Assistance Program affects about 20 schools, spending about $5,000 per facility. The program covers storm doors and windows, attic insulation, and infiltration measures.

Whitlow then went on to discuss OER's Public Information efforts. OER has circulated 1 million curriculum guides and produced numerous publications, including a guide on perimeter slab insulation written in layperson's terms for use by code inspectors.

Last year OER studied changes made in the building codes and produced a reprint for references purposes, Whitlow reported. Kennesaw College performed an additional study regarding public perceptions of new building codes.

Regional Perspective
Building Conservation Programs,
Jim Tait, Florida Energy Office, (FEO)

Mr. Tait of the FEO then reported on energy activities in that state. He mentioned that although the region is often blamed for being behind others in energy programs, it may, in fact, be a leader in the area of public/private partnerships. Tait explained that one

obstacle has been the fact that energy is comparatively inexpensive in the region. He explained that energy costs have remained stable versus personal income. This stability may change in the future, however, as meeting the growing peak demand may require additional plants. According to Tait, FEO projects a growth of 15,000 MegaWatts (MW) in the next decade, whereas the utilities are predicting only 11,000 MW.

Tait commented that Florida has a mandate from the Governor's office for departments to seek means of cost-cutting, including energy savings measures. Tait said that he has noticed extreme ignorance regarding energy issues among policy-makers. This is largely the result of what he calls a "synapse" problem between the policy-makers and the technicians who possess the necessary information. The solution is to encourage technicians and managers to begin demanding improvements in this area. This approach represents an emphasis shift from public awareness efforts to efforts directed at decision-makers.

Tait described the average state government office building in Florida as having an energy consumption rate of 85 kBtu/ft^2, relatively similar to overall averages in the region. An effort is underway to significantly reduce this usage. Tait mentioned that Florida's Department of Transportation offices, a 1960-70's vintage building, with a consumption rate of 120 kBtu/ft^2, has become a masterpiece of the project. A planned $4 million retrofit, including fire code mandates and other measures, will reduce consumption to 65 kBtu/ft^2. The potential for this type of program is that energy usage could be reduced to as little as 25% of current levels, as has already been recognized in Europe and Japan.

Tait posed the following question: "Can we maintain current practices economically? Can we maintain these practices environmentally?" The FEO is working with trade associations, building technicians, and professions, encouraging them to be more concerned with energy. This is the group of people who will provide answers to the growing questions from policy-makers. Florida plans to change current practice.

Regional Perspective - Utility Programs, John Geib and Beryl Jackson, Duke Power

John Geib and Beryl Jackson of Duke Power presented a regional perspective on utility issues and concerns. Mr. Geib began by offering a general perspective and then went on to concentrate on commercial issues. Jackson then followed with a discussion of residential issues. Geib said he was excited about emerging opportunities for utility and government cooperation. These opportunities include working out a fifteen-year plan with regulators as part of their Integrated Resource Planning (IRP). He said that Duke Power's goal is "to be a leader in helping customers to be more efficient users of energy."

Geib described IRP and then went on to discuss utility activity in the industrial and commercial market. He said that DSM programs were in place in many places and that in addition to this, the industry was responding to needs with a variety of resources developed to assist utilities and customers. These resources include the Edison Electric Institute (EEI), set up to conduct marketing research, and the Electric Power Research Institute (EPRI), set up to conduct technical and applications research.

Geib went on to mention other efforts, including a variety of rebates available to customers considering high efficiency measures or shifting to off-peak loading. These rebates cover such options as thermal storage, load shifting, use of high efficiency equipment (such as high efficiency chillers and package systems),

and lighting options such as improved facade lighting schemes and high efficiency interior lighting.

According to Geib, several barriers hamper the effort to improve energy efficiency programs. He described the level of energy efficiency education among decision-makers, both in government and the utilities, as a barrier. Another barrier Geib mentioned is the unattractive first cost often associated with measures. He felt that the exclusion of utilities in certain decision-making processes resulted in improper rates and the loss of rebate opportunities. Finally, he mentioned that an important barrier is the low priority that energy efficiency holds among designers.

As a means of removing these barriers, Geib said that it will be necessary to identify and educate decision makers. Encouraging the concept of life cycle costing to be incorporated in decision making will encourage better energy approaches. He would like to see the utilities invited to participate in design teams so that energy measures can be integrated at the earliest opportunity.

Ms. Jackson then discussed utility perspectives in the residential market. Jackson said that the buck stops with the consumer in this market. She also noted that serving special-needs customers is an important issue. Low income customers have greater needs because their housing stock is generally lower in quality. As a result, their energy consumption becomes a disproportionate share of their income.

Discussing government's role, Jackson defined it as the protection of competition and the provision of services. But sometimes the government is over-involved, which leads to barriers for efficiency programs. She said that she considers positive incentives to be more successful than regulation as a motivator to help achieve government's goals. As of yet she has seen no movement in this direction as there are no firm commitments to remediate utilities' losses associated with DSM programs. As a result, Jackson noted there is no positive incentive for utilities in the region to embark on DSM programs.

Jackson described the following options for the region:

1. Promotion of high-efficiency heat pumps, coupled with a comfort guarantee and monitoring of installations to ensure quality,
2. Offering of rebates responding to summer peak control for installations of heat pumps and high-efficiency air conditioning and freezers,
3. Promotion of energy efficient home construction,
4. Establishment of off-peak rate structures,
5. Encouragement of load-shifting,
6. Encouragement of energy retrofit, including duct repair, and
7. Promotion of ground-coupled heat pumps.

Regarding networking opportunities, Jackson encouraged developing a strategy that maintains flexibility, perhaps involving an Energy Efficient Building Council. Jackson also suggested getting involved with private non-profit organizations, because all programs sincerely committed to issues such as affordability, environmentalism, and reduction of foreign imports should act on the common goal of energy efficiency.

According to Jackson, several barriers exist to energy efficiency in the region. The fact that most government program grants are limited to private non-profit organizations and government agencies weakens the possibility of public/private partnerships. She also cited the lack of understanding about the economy of heat pumps.

Jackson closed by proposing a strategy for leaving the past for a bright, new future. This begins by identifying the audience that must be reached to encourage greater energy efficiency. This audience should be approached through all forms of media (TV, newspapers, radio, magazines, etc.). To engender a better response to programs, utilities must strive to meet or exceed customer expectations. And finally, Jackson observed, the utilities must come to be seen as allies.

Model Projects — Affordable Housing
Dennis Creech, Southface Energy Institute

Mr. Creech described work in affordable housing that is conducted under a Housing Development Corporation and a Cottage Homes Program. He also related research and education efforts.

Regarding the importance of building energy efficient affordable housing, Creech described how affordability is often defined according to the builder's needs as opposed to the needs of the home owner. He went on to say that low income residents often spend from 15-30% of their income to cover energy costs. This disproportionate expense takes funds away from other concerns, such as nutrition and medical care.

Creech introduced the Cottage Home, detailing its design and the energy features that increase its affordability. The total cost for the package of energy efficiency improvements, over typical building practice, is $2,650. This cost amounts to an annual additional mortgage expense of $320 and an annual energy savings of $800, resulting in a net annual savings of $480. Creech described this amount as significant to a low income family.

Passive solar design is an important feature of the program, with roof designs that accommodate adequate insulation and also provide adequate shading to assist in cooling. When possible, these homes are built on a concrete slab on grade to provide thermal mass, taking care to provide adequate perimeter insulation (a requirement of the state energy code frequently overlooked by inspectors).

Creech reported that the Airtight Drywall Approach is used to maintain a well-sealed envelope, and this is coupled with measures such as isolation of combustion units to maintain proper indoor air quality. Materials with formaldehyde content are also avoided to improve indoor air quality, and materials are sealed to reduce out-gassing when formaldehyde is unavoidable.

Other details include the use of double-glazed aluminum windows with thermal break (combining economy with thermal performance), specifying water-conserving fixtures and appliances, using non-CFC sheathing, and providing for handicapped accessibility.

As a result of this approach, good results have been achieved for low income residents, with the highest monthly utility bills in the range of $30. Creech stressed that non-profit organizations must market energy efficiency as a component of affordability. These modest sized homes are not promoted as "small homes," but instead as "Cottage Homes." This name indicates size but also the character of the design, which is carefully chosen to fit into a neighborhood, making a contribution to the neighborhood without detracting from its character.

Model Projects — Commercial
Dave Ferguson, North Carolina Alternative Energy Center (AEC)

Mr. Ferguson presented a brief history of the AEC and described some of their successful energy programs. As an example, a survey of homes in the Raleigh area showed that there was a critical need for better training of HVAC technicians. The AEC met with representatives of the

utilities, HVAC industry, and community college to develop an educational program located at Montgomery Community College. Building on other programs in the region, they developed an intensive one-week curriculum. Results of testing students before and after the program showed a 27% improvement. Over five years 500 technicians were trained.

Ferguson reported that a program to work in the commercial market began in 1991. After analyzing various opportunities, the decision was made to focus on lighting. The Lighting Resource Center was formed to research and demonstrate the latest technology. An important function of this Center is to assist designers to develop more efficient lighting schemes. It features resource libraries and sponsors seminars that, combined with the exhibits, have drawn over 300,000 visitors.

Working with the Green Lights program, the Lighting Resource Center conducts recruiting sessions and has plans to develop additional training programs in an effort to promote the installation of the most energy efficient lighting practical for each project. The Lighting Design Assistance Program provides a lighting consultant, free of charge, to work with design teams involved in planning new facilities. This program is targeted at commercial office space, but they have also been approached by the McDonald's Corporation to assist in the design of their facilities.

Ferguson listed several factors that help focus participants in the program: the opportunity to participate early in the design process, an emphasis on commercial or office space, a location in the Research Triangle vicinity, sizes ranging from 2,500-7,500 ft^2, and an eagerness among clients to participate.

Ferguson added that the AEC is also active in daylighting design. Using DOE funds, they have set up a trailer that tests daylighting strategies in a scale model office environment. One of the strategies that they have used involves the use of "light shelves" capable of directing natural light, by means of reflection, deep into office space. The AEC has also developed a Sun-Angle Simulator for testing daylighting strategies on the scale of entire buildings. The Simulator allows designers to investigate how the sun, during a variety of seasons and at different hours, will strike their building. Scale models can be placed in the simulator and the impact of various changes to the proposed building can be seen, enhancing the design process.

Southern States Energy Board (SSEB), Beth McClelland

Ms. McClelland of the SSEB described that organization. She explained its structure and how it might serve as an umbrella for a Building Energy Efficiency Committee. McClelland reported that the SSEB was founded in 1960 and established by Congress in 1962. In form, it is a public, non-profit, interstate compact organization that serves as a regional representative in energy matters. The membership includes 16 contiguous Southeastern states. Each member state is represented by its governor and one legislator.

The SSEB has a yearly budget of approximately $1 million. Current activities respond to a variety of energy and environmental issues. They include serving as a liaison between member states, providing a variety of direct services to members, and publishing an annual directory of pertinent legislation. A primary role is to coordinate interstate compacts between member states. On occasion, at the request of a member, the SSEB will represent that state before legislative, administrative, or regulatory bodies.

According to McClelland, the SSEB currently has seven standing committees, including a Conservation and Renewable Energy Resources Committee (CRERC), a Clean Coal Technology Coordinating Committee, and a Utility Advisory Committee. A Building Energy Efficiency Committee could either form an additional standing committee or become a sub-committee of the CRERC. The CRERC has met twice discussing an agenda of five issues, including IRP, used oil programs, and building energy use.

Another option would be that a Building Energy Efficiency body could become an associate member of the SSEB. Associate membership is available to provide the private sector with an opportunity to participate. Annual associate membership fees are $2,000. Committee members do not need to be associate members.

Some attendees voiced concerns that associate membership status often implies limited benefit or involvement. Ken Newerth of the SSEB said that this is not true with associate membership in the SSEB. He said that all groups within the SSEB function on a consensus basis and that associate members are given equal weight in this process.

Report on
Building Energy Efficiency Review Panel, Bion Howard, Alliance to Save Energy

Before the summary reports from the breakout session were given, Mr. Howard gave a report on the DOE's Office of Building Technology's Building Energy Efficiency Review Panel. The purpose of "BEEPR" was to find out how to get more out of "BEER" or "building energy efficiency research." Its conclusions were the following priority issues:

Accelerate Implementation and Penetration of Measures by:
- Increasing Weatherization
- Boosting Federal Energy Management Programs
- Forming increased private/public financing (for such things as demonstration facilities)
- Providing financing and technical support to DSM programs
- Increasing support levels for standards and codes

Continue to fund innovative R&D:
- Working more closely with industry
- Developing advanced controls
- Studying interaction of behavior with energy consumption (Do Occupants Ruin Design Intentions?)
- Whole building design evaluations

Enhance Knowledge and Skills:
- Training technicians
- Supporting university activities
- Improving audit technologies
- Supporting common understanding of codes

Strengthen Program Planning And Analysis:
- Studying market strategies
- Using permanent peer review process (Including strategic plan for better "BEER")

Translate Goals into Successful Projects

Priority Work Areas

As mentioned in the Introduction, no definitive list of priorities emerged from the workshop, but attendees did identify areas where work should begin for the Southeast.

Energy Efficiency Networking in the Southeast

The workshop on Building Energy Efficiency in the Southeast was considered by many to be the first step in setting up an organized network of people interested in energy efficiency and energy policy in the Southeast. The wide range of people who attended this meeting showed interest in and commitment to working on building energy efficiency issues in this region.

One of the areas of almost universal agreement at this meeting was the need to organize and promote an effective network of people and organizations to share information about resources, research and project results in the region. Various mechanisms for networking were discussed, including 1) a newsletter with short descriptions of projects and results, 2) a detailed Resource Guide, listing organizations, people, and areas of interest, 3) a Computer Bulletin Board system, where people could post notices of their projects and their questions for other users to note or help with, and 4) a Telephone Support service, where some group or organization provides technical information for the Southeast.

The meeting attendees also were unanimous in their desire to have another, possibly annual, meeting of people interested in energy efficiency in the Southeast. The meeting was considered to be a critical part of networking, and many felt that the primary benefit of the meeting was in finding out how much was really going on in the region already, and getting to meet people doing similar work.

Training and Certification

The Building Efficiency Workshop pointed out the need for high-quality training for several groups involved in new construction and renovation projects in both commercial and residential buildings. A sampling of these groups includes: HVAC technicians, building maintenance personnel, leasing agents, property managers and developers. The primary focus of the training would be in having these groups understand energy in construction and the value of having equipment operate efficiently. A better understanding of interrelationships in buildings is also a focus...like how lightning has an impact on HVAC design and operation. It was also pointed out that some form of certification gives specialized training more significance and recognition in the marketplace. Through the networking started at the workshop, better understanding of potential training needs will be developed. In the future, interested organizations can consider joint development of training programs and possible marketing or sharing of existing training programs.

Market Forces/Incentives/Barriers

In the Southeast there are a wide variety of environmental, regulatory, and market forces. To some extent these are so interrelated that one can not address one issue without touching the others. In general, we have low energy prices, high humidity, a relatively clean environment, and State and Local regulations that seek to minimize the consumer's cost of electricity and gas. These forces directly

affect the use of efficiency technologies in buildings.

In this context decision makers, influencers and stake holders often conclude that building energy efficiency measures are not wise investments. On the other hand, these people also realize that the environment would benefit from using energy more wisely. Incentives are often considered as the way to overcome the barriers to wise energy use. However, someone must pay for incentives, and the issue of "who pays" creates a barrier. Many other barriers also exist.

Participants at the Workshop focused a significant effort on discussion of the need to address barriers to building efficiency through education, incentives, collaboration, and other means. Although significant research has been focused on these barriers, workshop participants are all not necessarily aware of this research. In addition, the conceptual framework for presenting these barriers changes over time as concepts are improved or modified to address different audiences. Because of the importance workshop attendees placed on this work area, the next workshop is tentatively planned to address some aspect of this work area. The opinions of workshop participants will be sought regarding what the focus of the next workshop should be. In addition, since the commercial panels at the workshop placed such emphasis on this area, response is being sought from workshop attendees regarding commitment to participate in some type of regional committee to address this topic for commercial buildings in the Southeast.

Resolving the barriers will take a great deal of creativity, cooperation and networking. The Workshop was a first step. Our future is bright, but hard work is needed to realize solid gains for building efficiency.

Performance of Technical Measures

While many energy efficiency technologies are available at reasonably attractive investment returns, certain market forces limit benefits from these technologies. One significant barrier is the investment risk that exists because energy and demand savings benefits are often less than expected on the average and difficult to predict for individual buildings. This risk makes:

- building owners and managers less likely to invest in energy efficiency,
- operation of energy efficiency programs more speculative than desirable, and
- determination by regulatory agencies of prudent actions in such programs more difficult.

Better knowledge of the performance of efficiency measures in buildings is a priority work area identified at the Building Energy Efficiency Workshop. Through the networking efforts established at the workshop, efforts directed at increasing knowledge of measure performance in buildings in the Southeast should be started.

Next Steps

Networking is a high priority, is supportive of other work areas, and is something that can be acted on quickly. Getting these workshop notes to attendees, identifying participants and urging contacts are all steps that can be taken now. The Resource Directory (attached) is another action to encourage networking. This Directory will be improved as it is used and as feedback is provided to its organizers. Other possibilities include a newsletter, a computer bulletin board and a telephone support service. Cost is always a factor, and we must be concerned that what will be started will have a good chance for continuity.

These issues will be discussed at the upcoming session of the Ad Hoc Steering Committee. Those who want to know can contact Ms. Pat Love at ORNL. Another topic for the Committee is a follow up workshop. Attendees were clear in recommending that any follow up be focused on a smaller set of issues and that the most appropriate area would be utility programs. Possible workshop themes range from informative exchanges of experiences to proactive events such as a "program market place."

With your help, some action can be started on other priority work areas. Enclosed with this report are questionnaires asking for data on existing training programs and on activities that individual attendees have taken since the workshop. The plenary sessions showed that a lot is happening in the Southeast. We need a way to gather and share these experiences. Finally, a third questionnaire asks to hear from those of you interested in meeting to continue the discussion of issues raised in the breakout session on commercial energy use.

APPENDIX A

Buildings Energy Efficiency Workshop
Shenandoah Environment and Education Center
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June 8-9, 1992

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APPENDIX B

WORKSHOP QUESTIONNAIRE-SUMMARIZATION N=40

1. Was the Workshop valuable?

1	2	3	4	5
Not very				Very valuable
0	6	8	15	11
0%	15%	20%	37%	28%

Comments:

-Didn't know that everyone has the same problems at installing energy savings at the consumer level.

-Will notify my area utilities of the value, and suggest that they participate.

-Follow-ups should stress action on items identified at the workshop.

-Would like to see more participation from other states' regulatory bodies.

-Intriguing possibilities developed in the breakout sessions suggesting changes in codes and utility pricing which were exciting.

-As the larger group got together lack of enforcement and utility competition to lower rates seem to provide impediment that will make significant progress very difficult.

-The number of electric power representatives was somewhat overwhelming.

-There are enough groups doing these types of sessions. The emphasis should be on tech transfer through newsletters, computer bulletin boards, etc.

-Recommend specific presenters on committee and subcommittee activities during plenary session. Initial focus should be sharpened.

-First time many of us have had a chance to meet and share ideas.

-Excellent preliminary discussions, NOW LETS DO IT!

-Not bad for an organizational meeting-I feel that the meeting was not geared at actually determining what we need to do to provide energy efficiency for buildings.

-Didn't think the objectives of the group were clear prior to the meeting, or after the first day session. Too much time was wasted with listing of "resources". These could have been handed in to a coordinator; share time could have been spent on actual questions from the groups.

-A great opportunity to meet other people interested in energy efficiency in the SE.

-Need to work a little more on structural format of program.

-Now that I know what to expect I think the next workshop will be very valuable. I'll understand what's expected of the participants and be prepared to participate more. I may even bring someone else from my company who could also benefit.

-Not enough detail on technical information.

-Need to have clear/defined objectives of the meetings. Purpose of the energy-efficiency workshop, pertaining to the industry as a whole. Cause & effect.

-The concept and introduction was great; execution was mediocre. Suggest professional facilitation-specific goods for session. Stick to agenda.

-Good beginning—but very difficult to deal with such a broad range of issues—would be more helpful if issues were focused going into the conference.

-Good mix of perspectives/backgrounds among presenters & participants.

-The diversity of people was very valuable.

-Discussion sessions were good—should have been coupled with formal presentations which may include results of field studies/tech. research projects/new E.E. concepts/marketing programs/etc.

-Need to continue—use this as a starting point.

-Enjoyed meeting individual participants. The session moderator seemed to have an agenda somewhat different from the attenders. The moderators did well with the open meetings format.

-Focus groups needed more direction.

-Good first opportunity.

-Much needed-"peer" group for energy efficient building exchange.

-Aided in getting a regional perspective on energy efficiency.

Summarization:

Strong points: Concept and Introduction.

Attenders enjoyed the interaction with other people who are in their field of interest.

Enjoyed the discussions, thought it was a great opportunity for sharing ideas.

Want to use what was learned.

Appears that many were not convinced on what the real structural format of the program was before they came to the workshop.

They had different ideas on what should have been the focus of some discussions.

2. Should we do it again?

YES	NO
39	1
98%	2%

3. How often?

Six months	Nine months	Twelve months	Annually	Every two years
9	1	7	19	3
23%	2%	18%	49%	8%

4. Do you have any format suggestions?

1½-day session	2-day session	No suggestion
28	9	3
70%	23%	7%

Comments:

-Have hospitality room available in evening (not for drinking purposes just as a gathering place).
-The breakout sessions were the most stimulating and productive.
-The first day was a little too long-a lot of information to digest.
-Include a briefing on actions that are pushing national energy policy such as: Clean Air Act Amendment of 1992; National Energy Act; National Energy Strategy; etc.
-Format should include at least one panel discussion on major topic (topic should be related to major thrust of group at large).
-The next meeting (s) should be at 6 mo. intervals until the organization can become size sustaining, then once every 12 mo.
-Allow for planes, trains, and automobiles.
-9-2 both days.
-Focus on sharing our resources in the S.E. and on most effectively using our research and development capabilities.
-Either 1½ or 2-day sessions would be acceptable.
-The 1½ day session works best for me.
-Sub-committees,utility counsel
-Breakout groups should be smaller, more focused. Have everyone introduce themselves at the beginning, or submit brief written bios. Have sessions where different perspectives on particular focus issues are presented to frame debates for breakouts (i.e. utility, gnt, end-user, technical).
-Needed: Plenary presentations; specific simultaneous presentations (i.e. residential, commercial); forums.
-I'd suggest we may wish to do residential only, then commercial.
-1½ to 2-day format is the most functional.
-1½-day is preferable, allows travel time. Discussion should be limited to specific subjects. Current method allows too much liberty to change discussion course by attenders. Limit time and subject.
-Keep location central to allow attenders with limited travel money to drive.
-Up front commercial/residential groups.
-Separate meetings or at least simultaneous sessions for residential and commercial-more separate than together.
-This one was just right.
-More structure in the future. Outline goals, build on each meeting.
-Small group, problem solving perhaps (or evening "jam" session) - informal.

Summarization:

The majority of respondents wanted:

another workshop;

it to take place annually;

each workshop to be a 1½-day session.

Smaller break-out groups that are focused more on specific subjects (establish subcommittees).

Separate meetings for residential and commercial.

Plan shorter days and allow more time for travel. Have a hospitality room available.

5. If subcommittees are formed, what topics do you suggest, and which one do you prefer working on (codes, training)?

-Lighting
-Certification
-Training Consumer/ Realtor
-DSM (Programs) /Incentives/Disincentives Coordinating (Utility)
-Incentive Regulation
-Resource Organizations
-Technologies & Tech Transfer
-Commercial/Residential Buildings (existing and new)
-Standards/Guidelines/ Codes
-Reaching Architects/ Engineers
-Market-Based Incentives
-Technology & Research
-Environment "Council"
-Energy Efficient Ratings
-Residential Incentives
-SE Energy Policy, SE Energy Research Needs
-IRP
-Utility Perspective
-Home (Building) Rating
-Education, Evaluation, etc.
-Training of Architects
-Quality Assurance (Envelope & Equipment)
-Public Education
-DIS-Incentives
-Economic Impact to ECM
-Manufactured Housing
-HERS

Summarization of Additional Comments:

-What is being done to improve productivity with HVAC & Lighting?

-Please add to the "Lets Include List" - SGA and GRI.

-Might consider holding future meetings on dates that would coincide with trade shows and in same city location.

-Great Mtg!!

-During some of the breakout sessions the ideas of the facilitators were "imposed" upon the group & is reflected in the way the ideas were written up.

-Some people came to the workshop with the wrong idea as to its purpose.

-Need to be careful how results are presented-ideas only, not group consensus.

-Provide a directory of SE energy resource people and organizations.

-Please be sure that a set of meeting "minutes" is sent out.

-Do not put all emphasis on utility incentives to change customer perceptions on energy efficient-explain pay back.

-Need to include natural gas utilities.

-ASO/ORNL/OBT committees should develop an implementation schedule/strategies.

-Opportunity to network and discuss issues in detail informally was a big benefit.

APPENDIX C — Technical Perspective Presentation

SOUTHEAST
Building Energy Efficiency
Technical Perspective

Michael MacDonald

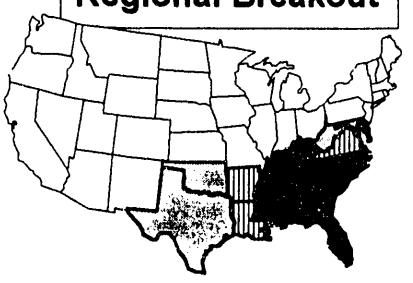
OAK RIDGE NATIONAL LABORATORY

REGIONAL WORKSHOP
Newnan, Georgia
June 1992

What Is the Region?

- Census South
- SEARUC Southeast
- DOE Atlanta region
- Southern Governor's Conference states
- Other

Regional Breakout



Survey Background

- Sent to about 60 organizations; 35 responses, some multiple from same organization
- Organizations were state energy offices, individual utilities, SEARUC PSCs, NCAEC, misc. other
- Not a scientific survey
- Responses were low, medium, high

High Priorities from Survey

- Network: tech transfer clearinghouse, regional conferences/ workshops
  - –tech transfer is key issue
- Building standards—people want some guidance
- Regional research projects—conservation measure effectiveness and affordability
- Air quality and infiltration issues

Building Efficiency Potential

- Many studies have examined savings potentials
- DOE suggests 15 quads/yr (source energy) can be saved in buildings by the year 2030 if "high conservation" is pursued
- Share in South could be 4 - 5 quads/yr
- Emissions reduced also

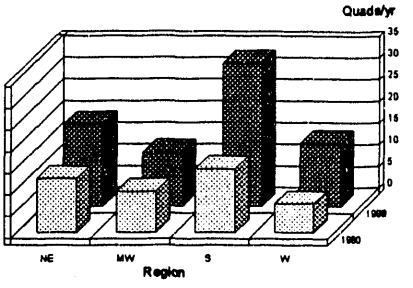
Environmental Issues

- Clean air, global warming, usable water
- U.S. has about 25% of world energy use and resulting air emissions, and buildings are about 9%
- Buildings in the South are about 3% of air emissions
- Using more means more potential change in the future

Regional Buildings Energy

- Largest increase in energy use in U.S. from 1960-1988 was in the South
- Energy use is proportional to population
- More air conditioning
- Electricity costs tend to be lower

Growth in Energy Use, 1960-1988



Buildings Characteristics

- Residences built in the South after 1985 are almost half of U.S. total
- Over 40% of all households in HUD projects
- Over 40% of all households below 125% of the poverty line
- Most residential heat pumps are in the South
- Commercial buildings are smaller

Important Considerations

- WX programs can save 25% of heating energy instead of 10%
- Direct installation DSM programs could potentially reach full 80% penetration within 5-9 years
- Methods for estimating savings of measures need improvement
- Fuel switching may be appropriate in many cases

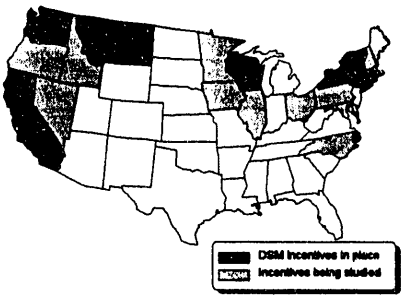
Investments and Savings

- Residential low-income WX investment is $70 for 1 MBtu/yr savings for good programs ($0.20/kWh)
- Commercial lighting investment is $0.20-0.50
- Other commercial measures can be $0.03-0.90

Issues

- New vs Existing Buildings
- We know less than desirable about energy performance
- Improved measures are needed
- Many uncertainties in audits
- Scaling programs from small to large penetration is not simple

Status of DSM Incentives 1991



My Commandments

- Improve audits and verify calculations
- Measure savings and track progress
- Advance measure technology
- Provide audit, installation, financing

Planning

- IRP is nice, but only tells you what ballpark you're in
- Implementation planning is also important, which extends beyond IRP
- Continual evaluation feedback is critical to improving programs in reasonable time frames
- Pilot projects important for region now

Example Goals

- Demonstrate program approach to save 25% of total energy use on average in existing SF homes for an investment cost of $0.25/kWh by 1995
- Demonstrate program approach to save 20% of total energy use on average for large commercial campuses for $0.30/kWh by 1995

Regional Cooperation

- Resources can be pooled to increase benefits of demonstrations
- Larger resource pool helps attract other resources
- Reduced duplication of effort, better sharing of responsibilities
- Increased knowledge may help direct national policy

END

DATE
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3/9/93