**1994 Building Energy Codes
and Standards Workshops:
Summary and Documentation**

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Foreword

This report is one in a series of documents describing research activities in support of the U.S. Department of Energy (DOE) Building Energy Standards Program. The Pacific Northwest Laboratory (PNL) leads the program for DOE.

The goal of the program is to develop and encourage the implementation of performance standards to achieve the maximum practicable energy efficiency in the design of new buildings. Such standards are required of DOE by Title III of the Energy Conservation and Production Act (42 USC 6831 et seq.) as amended by the Energy Policy Act of 1992 (EPAct, Public Law 102-486).

The program approach to meeting the goal is to initiate and manage individual research and standards and guidelines development efforts that are planned and conducted in cooperation with representatives from throughout the buildings community. Projects under way involve practicing architects and engineers, professional societies and code organizations, industry representatives, and researchers from the private sector and national laboratories. Research results and technical justifications for standards criteria are provided to standards development and model code organizations and to Federal, State, and local jurisdictions as a basis to update their codes and standards. This effort helps to ensure that building standards incorporate the latest research results to achieve maximum energy savings in new buildings, yet remain responsive to the needs of the affected professions, organizations, and jurisdictions. Our efforts also support the implementation, deployment, and use of energy-efficient codes and standards.

This document describes a series of workshops held in five U.S. cities in 1994 conducted for DOE by Building Energy Standards Program staff with assistance from DOE Regional Support Office staff. The purpose of the workshops was to share information about EPAct requirements for state energy codes with state energy offices and other interested parties.

Readers with questions, comments, or suggestions about this document or the work it describes are encouraged to contact the author(s), program managers, or project managers.

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Summary

During the spring of 1994, Pacific Northwest Laboratory (PNL), on behalf of the U.S. Department of Energy (DOE) Office of Codes and Standards, conducted five two-day Regional Building Energy Codes and Standards workshops across the United States. Workshops were held in Chicago, Philadelphia, Atlanta, Dallas, and Denver.

The workshops were designed to benefit state-level officials including staff of building code commissions, energy offices, public utility commissions, and others involved with adopting/updating, implementing, and enforcing state building codes in their states.

The workshops provided an opportunity for state and other officials to learn more about the Energy Policy Act of 1992 (EPAct) requirements for residential and commercial building energy codes, the Climate Change Action Plan, the role of the U.S. Department of Energy and the Building Energy Standards Program at Pacific Northwest Laboratory, the commercial and residential codes and standards, the Home Energy Rating Systems (HERS), Energy Efficient Mortgages (EEM), training issues, and other topics related to the development, adoption, implementation, and enforcement of building energy codes.

In addition to receiving information on the above topics, workshop participants were also encouraged to inform DOE of their needs, particularly with regard to implementing building energy codes, enhancing current implementation efforts, and building on training efforts already in place.

This paper documents the workshop findings and workshop planning and follow-up processes.

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1.0 Introduction

The Pacific Northwest Laboratory (PNL), on behalf of the U.S. Department of Energy (DOE) Office of Codes and Standards, conducted five two-day Regional Building Energy Codes and Standards workshops across the United States during May and June of 1994. The workshops were conducted by staff of the Building Energy Standards Program, which PNL operates for DOE. Field staff at DOE's Regional Support Offices assisted with the workshops. Workshops were held in the following cities:

- Chicago, Illinois, on May 4-5, 1994
- Philadelphia, Pennsylvania, on May 19-20, 1994
- Atlanta, Georgia, on May 23-24, 1994
- Dallas, Texas, on June 2-3, 1994
- Denver, Colorado, on June 16-17, 1994.

This report documents workshop findings and the workshop planning and follow-up processes. Section 2 describes the workshop planning process, the process used to identify and reach potential workshop attendees, and the goals of the workshops. Section 3 presents workshop dates, locations, workshop attendance, and agendas. Section 4 presents workshop findings. Section 5 describes workshop follow-up activities.

2.0 Workshop Planning

The regional workshops were an important component of PNL's Building Energy Standards Program 1994 implementation strategy. The goal of the implementation strategy is to disseminate information to states on the Energy Policy Act of 1992 (EPAct) and provide materials and assistance to states and stakeholders to promote the adoption, implementation, and enforcement of building energy codes.

The primary goals of the workshops were to

- Promote the adoption, implementation, and enforcement of building energy codes nationwide.
- Assist states in understanding and complying with the EPAct and Climate Change Action Plan legislation.
- Determine how DOE can enhance energy code training efforts already in place and establish an infrastructure from which building energy codes and standards can be launched.

The approach taken to identify and reach state staff was to work with the 10 DOE Regional Support Offices. The DOE Regional Support Offices are a critical link between DOE Headquarters and the 50 states. The Support Offices assisted PNL with workshop planning, and identifying key

state officials and potential workshop speakers. A list of the states included in each DOE Support Office Region is presented in Appendix A.

PNL initially worked with the Directors of the DOE Support Offices to choose workshop locations and to identify a contact in each support office to work with to coordinate workshop planning. Each Support Office has an individual that has been designated as the lead for buildings-related work and research for the region. This person was typically the one identified by the Director. Appendix B lists DOE Support Office staff who worked with PNL on the workshops.

Ideally one workshop would have been held at each DOE Support Office; however, time and budget constraints limited the number of workshops to five.

In addition to working with the DOE Support Offices, PNL used an internal database of state contacts and coordinated with four professional associations to identify potential workshop invitees. These associations were

- the National Association of Regulatory Utility Commissioners (NARUC)
- the National Conference on State Building Codes and Standards (NCSBCS)
- the National Conference of State Legislators (NCSL)
- the National Association of State Energy Officials (NASEO).

With the help of these associations, PNL identified and sent invitations to 368 people. The goal was to have at least one person from each state and U.S. protectorate attend a workshop.

3.0 Regional Workshops

Five Regional Building Energy Codes and Standards workshops were held as planned in the spring of 1994. Table 1 shows the workshop dates, locations, and DOE Support Office Regions invited.

3.1 Workshop Attendance

At least one invitee from each U.S. state and territory attended a workshop (except for four states - New Hampshire, North Carolina, Minnesota, and Alaska). A total of 165 persons, including DOE staff, attended the workshops; 40 people attended in Chicago, 28 in Philadelphia, 37 in Atlanta, 25 in Dallas, and 35 in Denver. A list of workshop attendees is presented in Appendix D.

3.2 Workshop Agendas

Each workshop began with a special address by the Director of the DOE Support Office in the region where the workshop was held.^(a) Up to two other special speakers from the Region spoke at each workshop, typically one lunch speaker on the first day and one speaker to start the second day.

**Table 1. 1994 Regional Building Energy Codes and Standards
Workshop Dates and Locations**

Date	City	DOE Regions ^(a)	Number Attending
May 5-6, 1994	Chicago, IL	5,7	40
May 19-20, 1994	Philadelphia, PA	1,2,3	28
May 23-24, 1994	Atlanta, GA	4	37
June 2-3, 1994	Dallas, TX	6,9	25
June 16-17, 1994	Denver, CO	8,10	35
(a) See Appendix A for a list of the states included in each DOE Support Office Region.			

Agendas for each workshop different slightly but essentially covered the same topics and issues, including:

- the role of DOE in promoting building energy codes and standards
- EPart requirements
- a history of building energy codes and standards
- an overview of the standards and codes process (ASHRAE 90.1 and 1992 MEC)
- the status of codes in the states
- the Climate Change Action Plan
- Home Energy Rating Systems (HERS) and Energy Efficient Mortgages (EEMs)
- MEC implementation materials

(a) In Atlanta, Fred Singleton, Building Manager of the Atlanta Support Office, gave the opening address for the Support Office Director, Al Hymer.

- building design issues
- enforcement training.

Some of these topics were added to the agenda due to strong interest by attendees at previous workshops, so the agenda "evolved" from one workshop to the next. For example, a session on building design issues was added to the Dallas and Denver agendas after a number of workshop attendees at previous workshops expressed an interest in the topic. See Appendix C for a copy of each workshop agenda.

The workshops were organized in a way that would encourage and facilitate discussion between attendees and the PNL and DOE presenters. Most presentations were limited to 30 minutes or less to allow time for discussion and questions. Since attendance at the workshop was mainly limited to state staff including energy office staff, public utility commission staff, and code officials, discussions were typically of interest to the majority of the audience.

4.0 Workshop Findings

A substantial amount of information on issues of concern to the states, state needs for technical assistance and tools, and information on stakeholder groups was collected at each workshop. To increase information collection, pre-workshop questionnaires were distributed to attendees prior to the workshop. Thirty-nine attendees completed and returned the pre-workshop questionnaire. Questionnaire responses are presented in Appendix E.

This section presents an overview of the information collected from workshop attendees via the pre-workshop questionnaire and comments and questions stated during the workshops.

4.1 EAct Questions and Concerns

Attendees were very interested in what the EAct legislation means to their states and had numerous questions for Building Energy Standards Program and DOE staff regarding EAct. The states are in need of funding to develop and implement building energy code training and enforcement programs. A number of questions and concerns related to getting the codes implemented and enforced on a widespread basis in the state. One of the primary questions regarding EAct was how DOE plans to assist states in meeting the federal mandate. Training and enforcement issues and needs are discussed later in this section.

The following legislative requirement questions and concerns were brought up by attendees:

- What are the consequences if a state chooses not to respond to the legislation?
- What if a state has no building energy code? Does the mandate still apply?

- What is an acceptable time extension for compliance?
- How should legislation be drafted by the state to comply with EPAct if a state prefers not to adopt the specified code by reference?
- How can the costs and benefits of code adoption be quantified?
- Are there alternative ways to comply with EPAct without adopting a state-wide code?
- Will dropping some sections of the code deemed to have marginal benefit be viewed as non-compliance with EPAct?
- The codified version of ASHRAE 90.1 has been copyrighted by ASHRAE, which presents a potentially large expense for states, cities, towns, etc.
- MEC doesn't address cooling as a dominant residential energy use.

See Appendix E, Question 2, for specific concerns regarding EPAct.

4.2 Stakeholder Groups

The successful adoption, implementation, and enforcement of building energy codes requires that a number of groups and individuals be knowledgeable about the code and its applications. Workshop attendees were asked to identify stakeholder groups in their states. Stakeholder groups identified include the following:

- state legislators
- builders
- state and local code officials (including plan reviewers)
- designers (architects and engineers)
- product suppliers
- financiers
- appraisers
- utilities
- home buyers.

For specific organizations representing stakeholder groups identified by workshop attendees, see Appendix E (Questions 4 and 5).

Workshop attendees were asked which groups or organizations are advocates and which are adversaries of the widespread adoption, implementation, and enforcement of energy-efficient building codes in their state. Although some of the above stakeholder groups were identified as both advocates and adversaries by different states, there were obvious trends. The following stakeholder groups were typically identified as advocates:

- the state energy office or related government office
- national and regional organizations supporting renewable energy and conservation
- code organizations (ASHRAE, Council of American Building Officials [CABO])
- major utility companies
- energy-efficient product manufacturers and contractors (i.e., insulation manufacturers).

The following stakeholder groups were typically identified as adversaries to the widespread adoption, implementation, and enforcement of building energy codes by workshop attendees:

- builders and contractors
- representatives of local jurisdictions
- code officials.

4.3 Potential Building Energy Code Implementation Partners

States often provide building energy code information to at least some stakeholder groups. This information is provided through reports, newsletters, and periodic presentations at stakeholder group meetings. Some states have gone further to provide comprehensive training and technical assistance on the energy code. These efforts often involve the development of partnerships with organizations that have strong connections with key stakeholder groups, or possess energy code training and technical assistance expertise.

Workshop attendees identified a number of stakeholder organizations that provide information or training on building energy code adoption, implementation, and enforcement to stakeholder groups, including:

- home builder associations (such as the National Association of Home Builders [NAHB])
- utility companies
- codes and standards groups (such as ASHRAE, CABO, International Conference of Building Officials [ICBO])

- architect/engineer associations (such as the American Institute of Architects [AIA])
- universities
- manufacturers of energy-efficient products.

For more specific information on a state-by-state basis, refer to Appendix E.

4.4 Building Energy Code Training and Technical Assistance Currently Available

Some workshop attendees identified code involvement, training, and technical assistance activities currently being provided by the state, utility companies, building component manufacturers (i.e., insulation manufacturers), professional organizations (i.e., NAHB, ICBO), and universities. However, some attendees were not aware of any training or technical assistance available in their state.

Most of the training and materials identified were directed at code officials, builders, and designers. Examples of activities that states mentioned include

- code refresher and update training, code commentary, and code consultation
- code consultation and preliminary plan review
- statutory continuing education for enforcement officials
- utility company-sponsored training to designers and builders
- life-cycle costing workshops
- daily technical assistance
- audio visual aids and instruction manuals
- computer programs to perform calculations and forms compliance
- off-site and on-site training for building departments including a certified examiner program
- telephone hotlines and newsletters
- computer versions of building standards including heating, ventilation, and air conditioning (HVAC) performance criteria and renewable energy guidelines and criteria
- individual training and technical assistance provided to local jurisdictions on an as-needed basis

- basic and advanced training classes and technical assistance on MEC and ASHRAE 90.1 for builders and jurisdictions
- training on specific energy technologies, design compliance, new construction, HVAC, lighting products, and quality construction methods for code officials, architect/engineering firms and utilities.

See Appendix E for more detail on building energy code training and technical assistance currently offered, as identified by workshop attendees.

4.5 Technical Assistance Desired from DOE

Workshop attendees were asked what kind of technical assistance their state would like to receive from DOE. Attendees identified an array of code involvement, training, and technical assistance activities needed to promote adoption, implementation, and enforcement of building energy codes. Those involved in building design, construction, and enforcement, such as builders, code officials, and designers, were the most commonly identified stakeholder groups that would be targeted for these building energy code training and technical assistance programs. Responses typically related to code involvement and stakeholder training and assistance.

Code involvement activities desired from DOE included the following:

- Make the codes more user friendly.
- Assist with interpreting ASHRAE and MEC requirements.
- Assist in tailoring a codified version of ASHRAE 90.1-89 to state needs.
- Address solar radiant heat gain and control issues related to MEC.
- Address enforceability of ASHRAE ventilation requirements.
- Identify and address grey areas in MEC and ASHRAE codes.
- Explain the intent of each code section and identify assumptions made and factors considered when setting the standard.
- Work to develop simplified energy standards to substitute for specific codes.
- Assist in evaluating new technologies for possible inclusion in the energy code.
- Monitor effects of code implementation.
- Conduct energy use research and testing on specific code applications.

- Conduct energy use research and testing on specific code applications.

Workshop attendees identified a range of technical assistance and training needs of stakeholder groups. Although nearly all stakeholder groups were identified as needing code training or technical assistance, the most often mentioned groups once again include code officials, builders, and designers. Assistance identified included development of the following tools and communication materials:

- state-wide training mechanisms
- basic and advanced (refresher and update) code training
- on-site training
- workshops
- software
- training booklets
- instructional tapes
- code manuals
- video tapes
- as-needed hotline services
- newsletters
- brochures
- TV spots or literature for prospective home buyers or renters
- code commentaries
- case studies of successful programs.

Potential topics to cover in training, technical assistance programs, or implementation materials include

- project management and marketing training for builders
- interpretation of ASHRAE and MEC requirements
- information on professionals and agencies involved in promoting codes

- coordination of utility DSM programs and building energy codes
- economics of adopting, implementing, or enforcing the energy code
- life-cycle cost analysis
- compliance and enforcement approaches.

4.6 "Words of Advice" from Workshop Participants

Workshop attendees claimed varying degrees of success in getting building energy codes adopted, implemented, and enforced in their state; but, regardless of the status of codes in their own state, almost all had advice for others. "Words of advice" tended to follow some general themes, which stressed

- partnerships with all stakeholders involved in building code adoption, implementation, and enforcement
- building energy code education and training
- careful code development and interpretation
- coordination with local utilities and public utility commissions.

The remainder of this section discusses specific "words of advice" shared by workshop attendees.

Much of the advice centered around developing partnerships at the beginning of the code development/implementation process by emphasizing the benefits of energy-efficient construction to all key players. Comments included the following:

- "Involve enforcement staff in the code adoption/upgrade process. If they feel they had input into the new code they will be more prepared and willing to enforce it.
- "Include representatives of all the affected parties in the decision process to adopt the code."
- "Form a steering committee including suppliers, builders, utilities, architects, code officials, associations, the League of Municipalities, etc. Create a board to oversee the adoption and provide technical assistance."
- "Develop the code through consensus among all impacted parties."
- "Hold public workshops and hearings with the general public to gather comments on the proposed code."

- "Involvement - ensure adequate involvement from designers, enforcement personnel, manufacturers, suppliers, builders, trade organizations, etc. Provide specific mechanisms to ensure that affected groups can and do participate."
- "Secure the active cooperation of key engineering and architectural organizations. Have them provide testimony before county councils and other governing bodies. Work closely with either the chair of the county council or the head of the public works committee, or both, to secure their active cooperation. Without their cooperation, a bill to adopt an energy code has little chance of passage. Both of the above measures often involve establishing friendships with key personnel, so that a bond of trust serves to carry legislation over obstacles."
- "Involve all stakeholders; don't let one interest group dominate code development."
- "Getting a code adopted is usually a political process. Absent a clear federal mandate, some type of consensus-building approach is likely to be necessary if passage of an energy code is to have a reasonable chance."
- "Invest sufficient time to build the necessary consensus among all key groups."
- "Get involved with the whole building code adoption process, not just the energy code. This helps establish relationships with other players and avoids being considered as having 'tunnel vision'."

A number of states stressed the importance of energy code education and training as key to successful energy code adoption, implementation, and enforcement:

- "Educate the public to the benefits of energy codes, including clear 'examples/history' of benefits achieved."
- "Involve a carefully planned, comprehensive education program before the code's adoption."
- "Train everybody; reward those who abide and punish those who do not."
- "Develop training materials like instruction manuals to explain the code to consumers. Conduct training frequently to train enforcement group(s)."
- "Up-front training, especially to design professionals, cannot be over-emphasized."

- "Adequate funding for training, plan review, and enforcement is critical."

Several states had advice relevant to the adoption and application of the energy code:

- "Resolve conflicts between various energy codes and standards."
- "Adopt a state-wide energy code and allow no local amendments."
- "Codes should provide some flexibility in the requirements of urban areas versus sparsely settled rural areas."
- "Develop a code that provides for several compliance options ranging from simple 'prescriptive' options to options that provide for design flexibility."
- "Be sure to get legislation passed."
- "Make energy code compliance a basic part of obtaining the building permit and ground disturbance permit."
- "Balance is important - while saving energy, the code must also be practical, enforceable and implementable."
- "Adapt nationally developed standards such as ASHRAE 90.1 and 90.2 and the CABO MEC, rather than devising from scratch your own approach."
- "Provide clear and correct technical information; there can be no agreement if the standard is not understood."

Two workshop attendees stressed the importance of coordinating efforts with local utilities or public service commissions. Both emphasized that training, technical assistance, and enforcement activities may be greatly enhanced by utility company involvement.

Other workshop attendee "words of advice" include

- "Funding may be leveraged with energy turnback funds not yet depleted."
- "Rely on existing code agencies to assist the process, and use information on programs that have succeeded in other states."
- "Simplicity is key."
- "Develop a certification program for compliance calculations."

- "Try to use energy codes to consolidate programs for addressing low-income housing weatherization needs."
- "Quality control in construction: it's the key to an energy-efficient home."
- "To understand the effect of a regulation, one must put himself in the shoes of the regulated."
- "Use the developing market for efficiency and environmental awareness to get buy-ins from all key players."

5.0 Workshop Follow-Up

The overall goal for this first series of workshops was to begin to establish an infrastructure from which training and information programs on building energy standards and codes could be launched. The workshops also served as an information forum for states to learn about EPAct requirements and related topics and enabled the Building Energy Standards Program to gain additional information on state needs.

This first set of workshops was extremely successful in bringing together state officials and others involved in promoting the adoption, implementation, and enforcement of building energy codes. Since it is not feasible for DOE to provide all the training that will be necessary at the local level, this foundation for state involvement with the DOE Support Offices and the Building Energy Standards Program is extremely important.

Attendance at the regional workshops was excellent, with staff from nearly every state at one of the workshops. Attendees who completed workshop evaluation forms were overwhelmingly pleased with the workshop format and had relatively few suggestions for improvement. Workshop evaluation comments are presented in Appendix F.

The most popular workshop topics included EPAct legislation, implementation materials, enforcement training, history of codes and standards, and the question and answer sessions. Nearly every session was chosen by at least one person as "the best," reflecting the variety of interests represented at the workshops.

Workshop attendees were asked if similar workshops would be useful to stakeholder groups in their state. Most believed they would be, especially for staff from local jurisdictions, building groups, and utilities. If similar workshops are held in 1995, care must be taken to limit attendance to those with similar interests. In addition, attendance should be limited to 50 people or less if the same workshop format, which included significant time for discussion, is to be employed.

Because Building Energy Standards Program and DOE staff were able to personally meet key state staff responsible for building energy codes in their states, a rapport was developed that will make future interaction much easier. The fact that calls to the Building Energy Standards

Program hotline have increased significantly since the workshops is evidence that the states are now aware that the Program is a vital source of information on building energy codes and standards. The Program has also received requests for technical assistance from a number of the states.

The challenge to the Building Energy Standards Program is to sustain this level of interest and involvement by the states. After the workshops, follow-up letters were sent to attendees thanking them for their participation and reminding them to use the Program as a resource for building energy codes and standards. Included with the follow-up letter was a form to request hard copies of overheads used at the workshop presentations. Several requests for the overheads have been received.

It is also important that Program staff continue to work closely with DOE Support Office staff who assisted with the workshop planning and coordination. Follow-up letters containing preliminary findings from the workshops and the results of the workshop evaluations were sent to DOE Support Office staff.

Attendance at the regional workshops was primarily limited to state energy office staff, public utility commission staff, and code officials. A number of stakeholder groups would benefit from similar workshops tailored more to their interests. Additional workshops are being contemplated for 1995 to meet the needs of these stakeholder groups.

Appendix A

States Included in the DOE Support Office Regions

Appendix A

States Included in the DOE Support Office Regions

Region	DOE Contact	States in Region
1	Roger Bavoux	Connecticut, Maine, New Hampshire, Rhode Island, Vermont
2	Wayne Belgrave	New Jersey, New York
3	Nancy Costa	Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia
4	Fred Singleton	Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, Puerto Rico, South Carolina, Tennessee, Virgin Islands
5	Mark Burger	Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin
6	Bob Gabour	Arkansas, Louisiana, New Mexico, Oklahoma, Texas
7	Kirk Bond	Iowa, Kansas, Missouri, Nebraska
8	Randy Jones	Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming
9	Julia Oliver	Arizona, California, Hawaii, Nevada
10	Arun Jhaveri	Alaska, Idaho, Oregon, Washington

Appendix B

DOE Support Office Staff who Assisted with the Workshops

Appendix B

DOE Support Office Staff who Assisted with the Workshops

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Appendix C

Building Energy Codes and Standards Workshop Attendees

Appendix C

Building Energy Codes and Standards Workshop Attendees

Chicago Workshop Attendees
Chicago, Illinois, May 5-6, 1994

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Appendix D

Building Energy Codes and Standards Workshop Agendas

REGIONAL BUILDING ENERGY CODES AND STANDARDS WORKSHOP
Chicago, Illinois. May 5-6, 1994

Agenda, Day 1

<u>Time</u>	<u>Topic</u>	<u>Speaker</u>
9:00 - 10:00	Registration and continental breakfast	Terry Odell, PNL Diana Shankle, PNL
10:00 - 10:10	Introductions	Linda Sandahl, PNL
10:10 - 10:30	Special Address	Charles Baxter, DOE Chicago Support Office
10:30 - 11:30	Overview of EPAct and Climate Change Legislation, HERS, EEMs, the State certification process, technical assistance of DOE grants to support exemplary State programs	Ronald Majette, DOE Headquarters
11:30 - 12:00	Role of DOE and the Building Energy Standards Program at PNL	Jeff Johnson, PNL
12:00 - 1:30	Lunch - served in the meeting room	Charles Williams, Dept. of the Environment (Chicago)
1:30 - 2:00	History of building energy codes & standards	Dave Conover, PNL
2:00 - 2:30	Overview of the Standards and Codes Process - 1992 MEC and ASHRAE 90.1	Dave Conover, PNL
2:30 - 3:00	Status of national codes - residential - commercial	Jeff Johnson, PNL
3:00 - 3:30	Status of Codes in the States	Dave Conover, PNL
3:30 - 3:45	Break	
3:45 - 4:30	MEC Implementation Materials	Linda Connell, PNL
4:30	Wrap up and close	Linda Sandahl, PNL

REGIONAL BUILDING ENERGY CODES AND STANDARDS WORKSHOP
Chicago, Illinois. May 5-6, 1994. Agenda, Day 2

- 9:00-9:15 **INTRODUCTIONS** - Linda Sandahl, PNL
- 9:15-9:30 **SPECIAL SPEAKER** - Mark Jansen, Indiana Dept. of Commerce
- 9:30-9:45 **OPENING DISCUSSION**
What is the most positive action taken in your State to get building energy codes developed, adopted, implemented, and/or enforced?
- 9:45-10:30 **RECENT LEGISLATION**
What concerns do you have about the requirements of EAct Section 101?
- 10:30-11:00 **ADVOCATION**
What groups have advocated energy code adoption and enforcement in your State? How successful have they been? What groups have opposed the adoption/upgrading of a building energy code? Why?
- 11:00-11:30 **INFORMATION DISSEMINATION**
What organizations provide energy code information in your State? For each organization, describe how the information is provided (i.e., newsletter, video, reports, etc.), what groups are targeted, and how often the information is provided.
- 11:30-12:00 **TRAINING AND TECHNICAL ASSISTANCE**
What training and/or technical assistance is provided in your State to those responsible for implementing building energy codes? Who provides this support?
- 12:00-1:00 **Lunch**
- 1:00-1:30 **DOE ASSISTANCE**
What technical assistance would you like DOE to provide your State? How would your State spend financial assistance from DOE to meet the requirements of the EAct legislation? Could these DOE funds be used to leverage other funds?
- 1:30-2:00 **UTILITY PROGRAMS**
Discuss a utility program in your State that has been successful in encouraging energy-efficient design and construction.
- 2:00-2:30 **CLOSING QUESTION**
If you could provide other States with one "word of advice" in terms of building energy code adoption/upgrade, implementation, or enforcement, what would it be?
- 2:30-3:00 **WRAP-UP**

REGIONAL BUILDING ENERGY CODES AND STANDARDS WORKSHOP
Philadelphia, Pennsylvania. May 19-20, 1994

Agenda, Day 1

<u>Time</u>	<u>Topic</u>	<u>Speaker</u>
9:00 - 10:00	Registration and continental breakfast	
10:00 - 10:10	Welcome	Linda Sandahl, PNL
10:10 - 10:30	Special Address	Gerry McGowan, Director, DOE Philadelphia Support Office
10:30 - 10:45	Introductions	attendees
10:45 - 11:00	Role of DOE in promoting building energy codes and standards	Ronald Majette, DOE Headquarters
11:00 - 11:15	EPAct requirements	Jeff Johnson, PNL
11:15 - 12:00	Questions and answers from States	Linda Sandahl, PNL (facilitator)
12:00 - 1:30	Lunch (provided)	Mark Fortney, Pennsylvania Energy Office
1:30 - 1:45	History of building energy codes & standards	Dave Conover, PNL
1:45 - 2:00	Overview of the Standards and Codes Process 1992 MEC and ASHRAE 90.1	Dave Conover, PNL
2:00 - 2:15	Status of codes in the States	Dave Conover, PNL
2:15 - 4:30	Questions and answers from States - problems and needs - energy code adoption - training and materials - enforcement - marketing - consensus building	Linda Sandahl, PNL (facilitator)
4:30	Wrap up	Linda Sandahl, PNL

REGIONAL BUILDING ENERGY CODES AND STANDARDS WORKSHOP

Philadelphia, Pennsylvania. May 19-20, 1994

Agenda, Day 2

8:00 - 8:30 Continental breakfast

8:30 - 8:40 Welcome

Linda Sandahl, PNL

8:40 - 11:00 Other DOE/HUD activities
- Climate Change Action Plan
- Home Energy rating System (HERS)
- Energy Efficient Mortgages (EEM)
- Other

Jeff Johnson, PNL
Dave Conover, PNL

11:00 - 1:00 Implementation materials, tools, training, etc.
- ASHRAE 90.1 users manual
- ASHRAE 90.2 materials
- MEC implementation materials
- State developed materials
- Other

Linda Connell, PNL
Eric Makela, PNL

1:00 Wrap-up

REGIONAL BUILDING ENERGY CODES AND STANDARDS WORKSHOP

Atlanta, Georgia. May 23-24, 1994

Agenda, Day 1

<u>Time</u>	<u>Topic</u>	<u>Speaker</u>
9:00 - 10:00	Registration and continental breakfast	
10:00 - 10:10	Welcome	Linda Sandahl, PNL
10:10 - 10:30	Special Address	Fred Singleton DOE Atlanta Support Office
10:30 - 10:45	Introductions	attendees
10:45 - 11:00	Role of DOE in promoting building energy codes and standards	Stephen Turchen, DOE Headquarters
11:00 - 11:15	EPAct requirements	Jeff Johnson, PNL
11:15 - 12:00	Questions and answers from States	Linda Sandahl, PNL (facilitator)
12:00 - 1:30	Lunch - (provided)	Dennis Creech, Director Southface Energy Institute
1:30 - 1:45	History of building energy codes & standards	Dave Conover, PNL
1:45 - 2:00	Overview of the Standards and Codes Process - 1992 MEC and ASHRAE 90.1	Dave Conover, PNL
2:00 - 2:15	Status of codes in the States	Dave Conover, PNL
2:15 - 4:30	Questions and answers from States - problems and needs - energy code adoption - training and materials - enforcement - marketing - consensus building	Linda Sandahl, PNL (facilitator)
4:30	Wrap up and close	Linda Sandahl, PNL

REGIONAL BUILDING ENERGY CODES AND STANDARDS WORKSHOP
Atlanta, Georgia. May 23-24, 1994

Agenda, Day 2

8:00 - 8:30 Continental breakfast

8:30 - 8:40 Welcome

Linda Sandahl, PNL

8:40 - 11:00 Other DOE/HUD activities
- Climate Change Action Plan
- Home Energy Rating System (HERS)
- Energy Efficient Mortgages (EEM)
- Other

Jeff Johnson, PNL
Dave Conover, PNL

11:00 - 1:00 Implementation materials, tools, training, etc.
- ASHRAE 90.1 users manual
- ASHRAE 90.2 materials
- MEC implementation materials
- State developed materials
- Other

Linda Connell, PNL
Eric Makela, PNL

1:00 Wrap-up

REGIONAL BUILDING ENERGY CODES AND STANDARDS WORKSHOP

Dallas, Texas. June 2-3, 1994

Agenda, Day 1

<u>Time</u>	<u>Topic</u>	<u>Speaker</u>
9:00 - 10:00	Registration and continental breakfast	
10:00 - 10:10	Welcome	Linda Sandahl, PNL
10:10 - 10:20	Special Address	Curt Carlson, Director DOE Dallas Support Office
10:30 - 10:45	Introductions	attendees
10:45 - 11:00	Role of DOE in promoting building energy codes and standards	Ronald Majette, DOE Headquarters
11:00 - 11:15	EPAct requirements	Jeff Johnson, PNL
11:15 - 12:00	Questions and answers from States	Linda Sandahl, PNL (facilitator)
12:00 - 1:30	Lunch, special speaker	Bruce Hunn, Univ. of Texas at Austin, Center for Energy Studies
1:30 - 1:45	History of building energy codes & standards	Dave Conover, PNL
1:45 - 2:00	Overview of the Standards and Codes Process - 1992 MEC and ASHRAE 90.1	Dave Conover, PNL
2:00 - 2:15	Status of codes in the States	Dave Conover, PNL
2:15 - 4:30	Questions and answers from States - problems and needs - energy code adoption - training and materials - enforcement - marketing - consensus building	Linda Sandahl, PNL (facilitator)
4:30	Wrap up and close	Linda Sandahl, PNL

REGIONAL BUILDING ENERGY CODES AND STANDARDS WORKSHOP
Dallas, Texas. June 2-3, 1994

Agenda, Day 2

8:00 - 8:30	Continental breakfast	
8:30 - 8:40	Welcome	Linda Sandahl, PNL
8:40 - 10:30	Other DOE/HUD activities - Climate Change Action Plan - Home Energy rating System (HERS) - Energy Efficient Mortgages (EEM) - Other	Jeff Johnson, PNL
10:30 - 10:45	Break	
10:45 - 11:45	MEC implementation materials	Craig Conner, PNL
11:45 - 12:15	Building design issues	Linda Sandahl, PNL
12:15 - 12:45	Enforcement training	Diana Shankle, PNL
12:45 - 1:00	Wrap-up	Linda Sandahl, PNL

REGIONAL BUILDING ENERGY CODES AND STANDARDS WORKSHOP

Denver, Colorado. June 16-17, 1994

Agenda, Day 1

<u>Time</u>	<u>Topic</u>	<u>Speaker</u>
9:00 - 10:00	Registration and continental breakfast	
10:00 - 10:10	Welcome	Linda Sandahl, PNL
10:10 - 10:30	Special Address	Al Hymer, Director DOE Denver Support Office
10:30 - 10:45	Introductions	attendees
10:45 - 11:00	Role of DOE in promoting building energy codes and standards	Ronald Majette, DOE Headquarters
11:00 - 11:30	EPAct requirements	Jeff Johnson, PNL
11:30 - 12:00	Questions	
12:00 - 1:30	Lunch (provided)	Tom Brotherton, Colorado Office of Energy Conservation
1:30 - 1:45	History of building energy codes & standards	Dave Conover, PNL
1:45 - 2:00	Overview of the Standards and Codes Process - 1992 MEC and ASHRAE 90.1	Dave Conover, PNL
2:00 - 2:15	Status of codes in the States	Dave Conover, PNL
2:15 - 2:30	Break	
2:30 - 4:30	Questions and answers from States - problems and needs - energy code adoption - marketing - consensus building	Linda Sandahl, PNL (facilitator)
4:30	Wrap up	Linda Sandahl, PNL

REGIONAL BUILDING ENERGY CODES AND STANDARDS WORKSHOP
Denver, Colorado. June 16-17, 1994

Agenda, Day 2

8:00 - 8:30	Continental breakfast	
8:30 - 8:40	Welcome	Linda Sandahl, PNL
8:40 - 9:00	Special speaker	Eric Sikkema, National Conference of State Legislatures
9:00 - 10:00	Other DOE/HUD activities - Climate Change Action Plan - Home Energy rating System (HERS) - Energy Efficient Mortgages (EEM)	Jeff Johnson, PNL
10:00 - 10:15	Break	
10:15 - 10:45	Enforcement training	Eric Makela, PNL
10:45 - 11:15	Design issues	Linda Sandahl, PNL
11:15 - 12:15	MEC implementation materials	Craig Conner, PNL
12:15 - 12:45	ASHRAE 90.1 implementation materials	Sriram Somasundaram, PNL
12:45 - 1:00	Wrap-up	Linda Sandahl, PNL

Appendix E

Regional Building Energy Codes and Standards Workshop Questionnaire Responses

Appendix E. Regional Building Energy Codes and Standards Workshop Questionnaire Responses

Table 1. Responses to Question 1

ID #	DOE Region	State	Workshop	Response
<i>Question 1: In your opinion, what is the most positive action that has taken place in your State in terms of getting building energy codes developed, adopted, implemented, and/or enforced, that you would like to share with others?</i>				
1	5	WI	Chicago	The most positive result of building codes in WI has been a reduction in average fuel use per customer since the inception of the original code in 1978, The current code has rested on its "laurels" too long, however.
2	5	WI	Chicago	No response.
3	5	IL	Chicago	2 developments: First on behalf of the DOE and Natural Resources (IDENR), the ACEEE recently completed a study of statewide energy code for IL and concluded that such a code would be cost effective for the State. The analysis was based on CABO 92 MEC for residential buildings and ASHRAE 90.1-89 for commercial buildings. Second, a group of local code officials, homebuilders, architects & other entities recently approached IDENR about their interest in adopting a statewide <u>building</u> code, which includes a na energy component, and solicited IDENR 's participation. The potential for this coalition to build support for a statewide code offers perhaps the best opportunity to get an energy code adopted in IL.
4	5	IL	Chicago	Continuing efforts, studies and reports by NIPC (Northeastern Illinois Planning Commission).
5	5	IL	Chicago	IL Dept. of Energy contracted with consultant to prepare State energy code.
6	5	IL	Chicago	I plead ignorance at State energy <u>requirements</u> . These questions are beyond the scope of my expertise, responsibilities & experience. I hope to learn more about these matters at the workshop.
7	5	MI	Chicago	The State of Michigan by law has adopted a State energy code. This code is required statewide.
8	7	KS	Chicago	4 KS activities of note: Feb. '93 KS Energy Policy code draft released by Governor, recommending code equal to Standard 90. Yet to be endorsed by the Governor. 2) Legislative hearings scheduled for summer '94 as part of interim agenda for the Comm. on Energy & Natural resources, 3) KS Engineering Society adopted standard in its legislative agenda, 4) KS Corp. Commission (Kansas PUC) has opened a docket for hearings on adoption of the standard as a Commission order.
9	7	KS	Chicago	KS status quo includes K.A.R. 27-2-1, KS Maximum Lighting Standards & KCC Thermal Treatment Standards of the Rules & Regs. for Electric & Gas Service, Docket #110,766-U. This merely adopts ASHRAE 90-75R per KSA 58-1312.
10	7	NE	Chicago	1980 NE Building Energy Conservation Standard adopted, amended 1981, 1983. Neb.Rev.Sta. §81-1608 to 81-1626. Unaware of any implementation/enforcement activities in NE.

ID #	DOE Region	State	Workshop	Response
<i>Question 1: In your opinion, what is the most positive action that has taken place in your State in terms of getting building energy codes developed, adopted, implemented, and/or enforced, that you would like to share with others?</i>				
11	7	NE	Chicago	No response.
12	1	CT	Philly	Education workshops in '89 & '94 sponsored jointly by State Bldg. Inspectors Office, Office of Policy Management/Energy Division and both major electric utilities.
13	3	PA	Philly	2 things: Act 222, Bldg. Energy Conservation Act of 1980 and strong State leadership charged with administering the residential standards (ie. Mr. John Boyer).
14	1	DC	Philly	Adopting the BOCA National Codes.
15	1	VT	Philly	VT doesn't have statewide residential or commercial energy codes.
16	1	MA	Philly	MA adopted ASHRAE 90.1 ('88 2 nd public draft) in July '88. 90.1-"88" is the Energy Conservation Code, within the uniform State Bldg. Code governing new construction, commercial & high-rise buildings.
17	3	WV	Philly	Better quality building stock.
18	3	VA	Philly	One single board with statutory authority to regulate bldg. construction standards.
19	2	NJ	Philly	Lack of interest can be attributed to "mathematical" nature of the code-need to be more "user-friendly" in determining compliance for code officials, especially with the contemplated adoption of CABO MEC and ASHRAE 90.1.
20	3	DE	Philly	The voluntary involvement of State BOCA officials in the code update process. Since BOCA standards are used in ¾ of the State, this definitely facilitates our process.
21	1	RI	Philly	Simple prescriptive component requirements.
22	3	PA	Philly	Adoption of the current version of ASHRAE 90 as mandatory energy standard for al new commercial & institutional construction.
23	4	AL	Atlanta	1.AL commercial codes only apply to State Buildings. 2. We don't have energy codes for residential buildings.
24	4	FLA	Atlanta	FLA '29 law S.553.901 F.S. mandate Dept. of Comm. Affairs to develop,update & maintain uniform standards for energy efficiency in thermal design & operation of buildings statewide. Additionally it required local governments to enforce the code, with 2 compliance methods: prescriptive & performance. Also, State passed in '93 a law for development of building energy rating system.

ID #	DOE Region	State	Workshop	Response
<i>Question 1: In your opinion, what is the most positive action that has taken place in your State in terms of getting building energy codes developed, adopted, implemented, and/or enforced, that you would like to share with others?</i>				
25	4	SC	Atlanta	Several pieces of legislation pending.
26	4	USVI	Atlanta	USVI Energy Office has held several public awareness activities to educate our community. We are in the primary stages.
27	4	GA	Atlanta	Nothing of any permanent consequence as yet. Maybe in the future.
28	9	CA	Dallas	Public process in place which ensures that affected parties are informed about energy codes decisions and have mechanism to participate in the process. Workshops staff or Comm. hearings are noticed by interested parties and comments are accepted in writing or orally in these meetings.
29	6	TX	Dallas	TX's support of ASHRAE 90.1 statewide is now applicable to all new State buildings except low-rise residential. State support through SECO significant to process. A computer version of the standard is under development, as are HVAC performance criteria & renewable energy guidelines & criteria. Additionally, many residential builders construct homes that exceed the CABO requirements.
30	6	AR	Dallas	1. HUD adoption of '92 MEC, effective Oct. '93. 2. AR became an EEM pilot State in July '93, per Act 750 legislation. 3. Public Service Comm. ordered all electric utilities to file IRPs. Subsequent collaborations have discussed State energy code. 4. Coordinated Housing Improvement Program for low-income housing projects must meet '92 MEC standards.
31	9	AZ	Denver	Passage of EPACT. Tucson/Pima Co. has reacted by passing a site-specific version of MEC.
32	8	CO	Denver	The fact that energy codes at all might get adopted.
33	9	HI	Denver	1. Hired a nationally-recognized code consultant to create a MEC specific to HI's unique climate. 2. Held numerous workshops & meetings with private sector; formed a Model Code Task Force composed of leaders in code-related fields; made multiple presentations to each County Council.
34	10	ID	Denver	The NW Energy code adopted by 47 ID jurisdictions. Enforcers meet twice a year, once at roundtable and once at annual conference.
35	8	MT	Denver	Collaborative discussions on residential codes involving builders, legislators, code officials, energy office officials paved the way for an updated residential code.

ID #	DOE Region	State	Workshop	Response
<i>Question 1: In your opinion, what is the most positive action that has taken place in your State in terms of getting building energy codes developed, adopted, implemented, and/or enforced, that you would like to share with others?</i>				
36	9	NV	Denver	HUD, VA & FMHA adoption of MEC resulted in Clark County's adoption of the '92 MEC with certain exemptions and changes, effective Jan.1, '94. (Clark Co. is NV's most populated county, containing Las Vegas). The So. Nevada Home Builders Assoc. was consulted early to develop a code they could live with. Because of their political strength, support of the code basically paves the way for State legislature to mandate the code statewide.
37	8	UT	Denver	Jan. '92 MEC "Thermal Envelope Compliance Guide" by NCSBCS. Also, EPACT puts pressure on the States.
38	8	UT	Denver	No response.
39	10	WA	Denver	Residential: RCW 19.27A legislation; Utility programs in training, software, literature, research; WA State Energy Code Program's Tech & Financial Support, Builder & Code official training, Implementation & Quality Assurance plans. Non-Residential: State building code Council rulemaking; implementation plan/ specials plans examiner/special Inspector program.

Table 2. Responses to Question 2

ID #	DOE Region	State	Workshop	Response
<i>Question 2: What specific concerns do you have in your State with regards to the building code requirements of EPAct?</i>				
1	5	WI	Chicago	Codes & Standards aren't designed/enforced to motivate a pro-active change in the market toward greater efficiency, based on cost-effectiveness for customer, builder & the public interest. Initiatives for compliance should be built in at the State level, which is now not the case in Wisconsin.
2	5	WI	Chicago	How will the equivalency between Codes developed and ASHRAE 90.1 or MEC be determined? Even if all States have same/similar codes, differences in enforcement will have the same effect as dissimilar codes. What can be done?
3	5	IL	Chicago	re EPAct: what specifically does it require of IL since IL has no codes to upgrade or review? 2. Not possible to pass legislation by fall '94.
4	5	IL	Chicago	1. Making the requirements know to municipalities. 2. Resolving conflicts with existing regulations and misinterpretations.

ID #	DOE Region	State	Workshop	Response
<i>Question 2: What specific concerns do you have in your State with regards to the building code requirements of EPAct?</i>				
5	5	IL	Chicago	Nothing specific.
6	5	IL	Chicago	No response.
7	5	MI	Chicago	Enforcement of the federal law. Many building officials either do not enforce the code or don't know the code exists.
8	7	KS	Chicago	1. Standard 90's codes set "minimum" requirements, which become design standards when adopted. Technology is changing more rapidly than codes can be revised; a federal mandate may only slow the process of upgrading. 2. State and local gov'ts react negatively to federal mandates, regardless of the standard being in the best interest of the State.
9	7	KS	Chicago	EPAct may be difficult to communicate with builders & contractors. At least for residential buildings, it may be easier to allow builders to defer to the codes when maximum energy usage assumptions are used. Simple guidelines (even if they are more restrictive than building codes intend) may gain broader acceptance in rural counties and communities that are without building codes.
10	7	NE	Chicago	1 How to draft State legislation to comply with the EPAct requirements (if other than adopting the updated codes & standards by reference) and 2. how to quantify the costs and benefits to the State.
11	7	NE	Chicago	Tying other federal programs & \$\$ to adoption of code with only vague promises of financial assistance "some time if it gets allocated".
12	1	CT	Philly	Compliance in small commercial/public buildings not requiring a design professional under State licensing laws, simplification of requirements to enforcement community to enhance widespread compliance.
13	3	PA	Philly	Not familiar with EPAct.
14	1	DC	Philly	Ease of adoption of required standards.
15	1	VT	Philly	Can VT satisfy commercial energy code requirements of EPAct via alternate means while not enacting statewide energy code?
16	1	MA	Philly	1. Codified version of ASHRAE 90.1 has been copyrighted by ASHRAE--this presents potentially astronomic expense issue for States, cities, towns, etc., forced by federal law to adopt 90.1 Isn't the codified document a public domain document? 2. In order to answer interpretive questions re: codified requirements of 90.1, State bldg. agencies must be able to immediately interpret same and not have to wait for an ASHRAE interpretation.
17	3	WV	Philly	Code officials need adequate training.

ID #	DOE Region	State	Workshop	Response
<i>Question 2: What specific concerns do you have in your State with regards to the building code requirements of EPAct?</i>				
18	3	VA	Philly	Financial assistance to be provided to States (VA?): how, when, how much?
19	2	NJ	Philly	Training for code officials and design professionals. Perceived or real impact on affordable housing.
20	3	DE	Philly	Opposition by home rule elements within the State that are devoted to opposing any mandates on States by the federal government.
21	1	RI	Philly	Keeping anything new simple to use for a non-technical person.
22	3	PA	Philly	Review & comprehension of residential code to MEC and then getting legislature to adopt more comprehensive code.
23	4	AL	Atlanta	1. enforcement 2. funds 3. legislation
24	4	FLA	Atlanta	1. availability of funds necessary to develop codes, enhance existing codes & develop training materials for the general public. 2. availability of tech. training materials for Standard 90.1 for humid climate such as FLA 3. availability of tech. assistant to help States comply with '92 EPAct. 4. availability of tech. assistant/funds to help States understand the cause of IAO problems and its impact on energy codes.
25	4	SC	Atlanta	Pending legislation "shelved" in subcommittee.
26	4	USVI	Atlanta	Not familiar with EPAct.
27	4	GA	Atlanta	Not enough propaganda about it.
28	9	CA	Dallas	1.Are the codes cost effective for each State? If not, is each State required to adopt codes which aren't cost-effective as mandated by State standards? 2. Are the efficiency measures in these codes practical and compatible with individual State construction practices? 3. Will better public involvement process be established for future revisions of these codes to ensure adequate participation from States? 5. Will codes be charged on a 3-yr. cycle like UBC,UMC, etc? 6. What penalties for non-compliance? 7. What will be acceptable time extension for compliance? 8. What are specific certification guidelines? 9. What are short/long-term plans for implementation tools/programs to support ASHRAE/MEC? Current hotline,manuals, computer programs, training,etc are inadequate for both codes.
29	6	TX	Dallas	The only State-adopted code in TX is 90.1, applying only to new State-owned, non-residential buildings: thus, there is no State residential standard and no non-residential standard for private buildings. Local jurisdictions are free to adopt or ignore various national standards. Also, there is no uniform enforcement system, especially in the residential sector and resources are not available for statewide code compliance system.

ID #	DOE Region	State	Workshop	Response
<i>Question 2: What specific concerns do you have in your State with regards to the building code requirements of EAct?</i>				
30	6	AR	Dallas	1. EAct doesn't address enforcement or provide basis for States to build their own system. 2. Residential requirements aren't mandated for State adoption.
31	9	AZ	Denver	CABO MEC 92 based on heating degree days only. mec only addresses overall thermal transmittance of an envelope. MEC doesn't address desert solar radiation as the dominant driver of residential energy use. (see response to HERS council for details).
32	8	CO	Denver	Dropping some sections of the codes which have a marginal benefit might be seen as not complying with EAct.
33	9	HI	Denver	Heating sections of AHSRAE 90.1 document have no bearing on Hawaii, and have been deleted. Much of ASHRAE 90.2 relates to heating and insulation, which also has little bearing on Hawaii.
34	10	ID	Denver	Financial support is #1 concern so State Energy Office can implement requirements. We're also concerned that information/compliance tools be channeled through existing networks for tech. assistance and training and that these info. resources be tailored to ID's specific needs.
35	8	MT	Denver	Nothing specific although there is a general concern among MT code officials re: increased enforcement without a matching funding increase and there is a general distrust of federal mandates.
36	9	NV	Denver	NV has a critical need for code which considers direct solar heat gain through windows/skylights and indirect gain through attics. MEC doesn't meet this need for Group R construction. Las Vegas built 14,000+ new homes last year. NV is in great need of residential code which credits overhangs, glazing (per NERC criteria) radiate barriers and effective attic vent design (ridge & soffit/eave), or powered venting.
37	8	UT	Denver	EAct refers to 92 MEC which itself is quite general and in many cases vague/undefined.
38	8	UT	Denver	Enforcement of MEC 89, currently the only code in effect, has been poor. Without "teeth", how do we enforce MEC 92 or 90.1?
39	10	WA	Denver	1. Federal financing through HUD, VA, proving MEC equivalence by house. 2. Code development cycle: local, State or federal?

Table 3. Responses to Question 3

ID #	DOE Region	State	Workshop	Response
<i>Question 3: What groups/organizations have been advocates for the adoption/upgrading and/or the widespread implementation and enforcement of building energy codes in your State? Please describe how each group helped facilitate the implementation and/or enforcement of building energy codes.</i>				
1	5	WI	Chicago	Insulation contractors, progressive builders, renewable energy advocates, public service commission, utilities, some municipalities: promote voluntary building standards which exceed an outdated/inadequate code.
2	5	WI	Chicago	National Resource Defense Council, WI's Environmental Decade & several state legislators used WI law to petition our State Agency to update Bldg.Code 5 months before EPA Act. This moved Energy Conservation up in priority in our work load, but was more of a "stick" than a "carrot".
3	5	IL	Chicago	Aside from IDENR, City of Chicago, Dept. of Environment has been statewide energy code advocate (instrumental with ACEEE study). Also, some electric utilities initially advocated an energy code as an alternative to utility-sponsored DSM programs.
4	5	IL	Chicago	NIPC, BOCA
5	5	IL	Chicago	Building officials and BOCA, N.E. IL Planning Comm. assistance to municipalities.
6	5	IL	Chicago	No response.
7	5	MI	Chicago	Insulation manufactures, Dept. of Commerce - federal funding for construction, State of Michigan Bureau of Construction Codes, Mortgage companies.
8	7	KS	Chicago	KS Engineering Society has a formal position for adoption of the codes; however, legislature did not introduce in 94 session. Hopefully, environmental groups such as the KS Natural Resources Council.
9	7	KS	Chicago	Advocates have yet to identify themselves in KS.
10	7	NE	Chicago	No response.
11	7	NE	Chicago	Energy Policy Council (Governor appointees set energy direction for State). State Homebuilder Association has been quietly supportive of our training efforts.
12	1	CT	Philly	CT HomeBuilders Assoc. AIA/CT, Major utilities, CT Engineers in Private Practice, ASHRAE/CT Chapter.
13	3	PA	Philly	PA Energy Office via support of Bldg. Energy Conservation Committee along with its many programs to develop info. and technologies for energy efficiency and conservation.

ID #	DOE Region	State	Workshop	Response
<i>Question 3: What groups/organizations have been advocates for the adoption/upgrading and/or the widespread implementation and enforcement of building energy codes in your State? Please describe how each group helped facilitate the implementation and/or enforcement of building energy codes.</i>				
14	1	DC	Philly	DC Energy Office, DC Public Service Commission
15	1	VT	Philly	VT Chapter of ASHRAE. 2 ASHRAE Engineers were consultants to VT Dept. of State Bldgs. and assisted in the development of SBECS.
16	1	MA	Philly	MA Div. of Energy Resources (State agency) and numerous conservation organizations (\$\$ expertise, training assistance).
17	3	WV	Philly	Bldg.Code Officials Assoc., State Fire Marshall's office, Energy Efficiency Office
18	3	VA	Philly	Electric utilities, Design professionals
19	2	NJ	Philly	Don't know: NJ Dept. of Energy first implemented our energy code, since then it has been abolished and responsibility was given to the Dept. of Community Affairs under the general building code.
20	3	DE	Philly	State Div. of Facilities Management, State Energy Office leading the upgrade effort. State BOCA chapter has significant influence in Counties and municipalities.
21	1	RI	Philly	Electric utilities applied Higher "R" values for electric homes; Public Utility Commission gave full support but no specific areas.
22	3	PA	Philly	ASHRAE testimony, seminar sponsorship; Central Maine Power Co. gave code + design assistance, seminar sponsorship. Bangor Hydro Electric Co. seminar sponsor; ME Bldg. Officials & Inspectors Assoc. - some voluntary enforcement by members.
23	4	AL	Atlanta	AL Homebuilders Assoc., So. Building Code Congress
24	4	FLA	Atlanta	FLA Public Service Comm. provides funds for staffing the Energy Code program. Utilities/Electric provide free of charge technical assistant to consumers helping them perform Energy Code compliance calculations, and Mechanical contractors perform energy calculations for the general public free of charge.
25	4	SC	Atlanta	Sierra Club, insulation manufacturers, State Energy Office.
26	4	USVI	Atlanta	VI Energy Office is presently in the preliminary stages.
27	4	GA	Atlanta	Engineering groups.

ID #	DOE Region	State	Workshop	Response
<i>Question 3: What groups/organizations have been advocates for the adoption/upgrading and/or the widespread implementation and enforcement of building energy codes in your State? Please describe how each group helped facilitate the implementation and/or enforcement of building energy codes.</i>				
28	9	CA	Dallas	CA Building Officials (CALBO), CA. Assoc. of Building Energy Consultants (CABEC), CA Building Industry (CBIA), NRDC, Window Manufacturers (CAWM).
29	6	TX	Dallas	Local ASHRAE chapters played a major role in reviewing State non-residential standard. Certain local gov'ts, ie. Austin, developed and enforce strict energy standards. The TX Assoc. of Builders has pushed for updates and adoption of CABO MEC. However, on the State Energy Conservation Office and its predecessor organizations, have consistently supported codes and standards activities.
30	6	AR	Dallas	Engineers, architects, contractors doing work with commercial buildings. Building material trade allies and local inspectors. Energy Rated Homes of AR, Energy Rated Homes of America and Coordinated Housing Improvement program. These groups have adopted and/or use MEC standards. As yet, they haven't actively participated in implementation/enforcement of the State code.
31	9	AZ	Denver	Pima County (Tucson) has completed a process to re-write MEC for countywide application. Also, the ICBO has since begun to meet to address statewide mandates for EPAct.
32	8	CO	Denver	ASHRAE and IES have been disseminating information about ASHRAE/IESNA 90.1. Utilities have been providing tech. support. Our municipal government has been support from an environmental ethic.
33	9	HI	Denver	ASHRAE members, Some AIA-Hawaii and IES-Hawaii chapter members supported MEC by testifying.
34	10	ID	Denver	ID Dept. of Water Resources, Energy Division; NW Power Planning Council; Assoc. of ID Cities; Utilities; Code officials; Dept. of Labor & Industrial Services; Public Utilities Commission; Builders.
35	8	MT	Denver	Utilities have been major advocates. Private A/E community very supportive of upgrade commercial codes. SEO and utilities on residential codes and have begun similar work on commercial codes.
36	9	NV	Denver	NSEO, major utilities, consumer/environmental organizations. More importantly, there is a common concern in NV re: the lack of construction quality related to energy consumption and the corresponding lack of proper code enforcement.
37	8	UT	Denver	No one other than Energy Services doing anything actively.
38	8	UT	Denver	No response.

ID #	DOE Region	State	Workshop	Response
<i>Question 3: What groups/organizations have been advocates for the adoption/upgrading and/or the widespread implementation and enforcement of building energy codes in your State? Please describe how each group helped facilitate the implementation and/or enforcement of building energy codes.</i>				
39	10	WA	Denver	NW Conservation Act Coalition, petitions legislature, State Bldg. Code Council to improve energy standards on general public's behalf; NWPPC provides tech. analysis for adoption of cost-effective energy codes; BPA provides funding and program guidelines for implementation and enforcement; WSEO provides daily tech. assistance to local gov'ts and electric utilities on compliance/enforcement.

Table 4. Responses to Question 4

ID #	DOE Region	State	Workshop	Response
<i>Question 4: What groups/organizations have been opposed to the adoption/upgrading of a building energy code? a. What has been the main point(s) of opposition by these groups?</i>				
1	5	WI	Chicago	Large construction firms, financial institutions, property appraisers, some code officials: those who are focused on first-cost.
2	5	WI	Chicago	Those who would have to do more work to comply with a more complex code.
3	5	IL	Chicago	IL Municipal League has generally opposed statewide code initiatives, including energy codes. They represent the majority of IL local gov'ts, which presently don't have building or energy codes. They oppose any State mandate without concomitant appropriation of funds to support this added responsibility.
4	5	IL	Chicago	Homebuilders
5	5	IL	Chicago	Municipal League
6	5	IL	Chicago	No response
7	5	MI	Chicago	Building contractors
8	7	KS	Chicago	Anticipated objections will be primarily at enforcement. Standard 90 will likely have less opposition than a residential code such as the BOCA model or ASHRAE 90.2, where the housing industry is concerned about first-cost.

ID #	DOE Region	State	Workshop	Response
<i>Question 4: What groups/organizations have been opposed to the adoption/upgrading of a building energy code? a. What has been the main point(s) of opposition by these groups?</i>				
9	7	KS	Chicago	Residential builders, contractors and some architects have voiced concern over EPC codes; they feel EPC codes are restrictive and difficult to use. They also feel there are simpler ways to achieve the same conservation goals without strictly complying with EPC.
10	7	NE	Chicago	No response.
11	7	NE	Chicago	Custom homebuilders, Omaha Homebuilders & builders in small cities & rural areas identify additional costs but actual reason is probably a reaction against any government intrusion into building practices.
12	1	CT	Philly	Initially, homebuilders.
13	3	PA	Philly	PA Builders Assoc. has resisted codes and regulations.
14	1	DC	Philly	Minor opposition by builders & developers.
15	1	VT	Philly	Historically, VT legislature. Northern Homebuilders Assoc. of N. VT, VT Assoc. of Realtors, Vt Dept. of Labor & Industry.
16	1	MA	Philly	Home builders Associations move cautiously but are not openly opposed. Pre-engineered metal Building Mfg's seem more opposed. Also, concrete block industry is "nervous".
17	3	WV	Philly	Home Builders Association
18	3	VA	Philly	No response.
19	2	NJ	Philly	NJ Builders Assoc. has been opposed to the adoption of CABO MEC.
20	3	DE	Philly	No organized group to date: various home-rule elements exist that will oppose it. These include General Assembly members and building firms within southernmost counties.
21	1	RI	Philly	Builders.
22	3	PA	Philly	Legislators, Administration.
23	4	AL	Atlanta	None to date.
24	4	FLA	Atlanta	Florida Home Builders Association, ARI.: 1: disallowing a certain common construction practice, for example, disallowing locating air handler in attic and requiring air handlers to be insulated to R-6 when located in (unconditioned) space.

ID #	DOE Region	State	Workshop	Response
<i>Question 4: What groups/organizations have been opposed to the adoption/upgrading of a building energy code? a. What has been the main point(s) of opposition by these groups?</i>				
25	4	SC	Atlanta	County officials.
26	4	USVI	Atlanta	None.
27	4	GA	Atlanta	AIA and a few contractors. Cost vs. efficiency.
28	9	CA	Dallas	Same groups in #3 have opposed various elements of the code.
29	6	TX	Dallas	Local jurisdictions protecting their local rule; they want to control codes & standards applicable to them. Keeping costs down has been another factor.
30	6	AR	Dallas	Assoc. of Home Builders (AR)
31	9	AZ	Denver	Central AZ Home Builder Association; they oppose any government involvement in the building marketplace.
32	8	CO	Denver	Builders; they contend it is contradictory to affordable housing.
33	9	HI	Denver	No response.
34	10	ID	Denver	Building contractor associations and Natural Gas utility of Central and Southern ID oppose adoption of NW Energy Code and MEC. Builders are proposing an upgrade of the current Residential Energy Standard, but not to MEC levels. Their main points are 1 NWECE is "too high" a standard and time consuming to meet, 2. MEC information the builders have is erroneous; their position is based on idea that MEC reference has perimeter insulation instead of floor insulation in vented crawlspace, and that it doesn't vary with HDD.
35	8	MT	Denver	Code officials oppose increased enforcement levels, limited staffing and unfunded mandates. In addition to general mistrust of government regulation, front-end costs.
36	9	NV	Denver	Home builders in NV responsible for previous NSEO failure to upgrade minimum standards on new construction; their concern is with increased compliance costs, including labor, related to design compliance, timeliness of plan ("process") approval, materials, and on-site labor.
37	8	UT	Denver	Contractors, Realtors, Building officials, glass & window companies: change, cost, complexity.
38	8	UT	Denver	Builders, Inspectors: blame costs, complexity; don't understand.

ID #	DOE Region	State	Workshop	Response
<i>Question 4: What groups/organizations have been opposed to the adoption/upgrading of a building energy code? a. What has been the main point(s) of opposition by these groups?</i>				
39	10	WA	Denver	Building Industry of WA (BIAW): first-cost excessive, redundant & unnecessary. Any regulation negatively impacts affordability. Assoc. of NW Gas Utilities (ANGU): no code requirements are cost-effective; use of natural gas by itself best energy efficient choice; free market should be allowed to regulate.

Table 5. Responses to Question 5

ID #	DOE Region	State	Workshop	Response
<i>Question 5: What organizations provide information on building energy code development, adoption, implementation and enforcement of stakeholder groups (i.e., designers, code officials, builders) in your State? Describe how information is provided, to whom and how frequently.</i>				
1	5	WI	Chicago	Dept. of Industry, Labor & Human Relations, Utilities, Contractors, Builders, Architects, Engineers, etc.
2	5	WI	Chicago	As the State agency that develop and enforces the building code, we are the main source of information. Others pass it along, but I don't know how.
3	5	IL	Chicago	Primarily BOCA in IL, given that most communities have voluntarily adopted their building code.
4	5	IL	Chicago	NIPC, BOCA, Utilities.
5	5	IL	Chicago	N/A
6	5	IL	Chicago	No response.
7	5	MI	Chicago	No response.
8	7	KS	Chicago	KS Corporation Commission primarily; however, tech training for designers, code official and builders will probably be provided by engineering extension program from State universities. ASHRAE and AIA will be key promoters. KS educational programs for engineers and architects have ranged from short lectures to multi-day training on various portions of Standard 90. Anticipate variety of delivery mechanisms for the total program, ie. video tape, interactive compressed video, satellite video conferencing as well as on-site lectures.
9	7	KS	Chicago	KS AIA Chapter and Engineering Society. Both have task forces studying the issue.

ID #	DOE Region	State	Workshop	Response
<i>Question 5: What organizations provide information on building energy code development, adoption, implementation and enforcement of stakeholder groups (i.e., designers, code officials, builders) in your State? Describe how information is provided, to whom and how frequently.</i>				
10	7	NE	Chicago	No response.
11	7	NE	Chicago	State Energy Office and several manufacturer groups (NAIMA, Celotex, etc.)
12	1	CT	Philly	Primarily State Building Inspector's Office with much assist from individual ASHRAE contacts, both design professionals and electric utility individuals.
13	3	PA	Philly	PA Dept. of Community Affairs (DCA) in addition to many electric utilities.
14	1	DC	Philly	DC Energy Office, DC Dept. of Consumer & Regulatory Affairs.
15	1	VT	Philly	VT Dept. of Public Service, Dept. of State Buildings, and VT Dept. of Labor and Industry, ASHRAE.
16	1	MA	Philly	State office provides training to code officials; otherwise, do not believe any private sector training exists.
17	3	WV	Philly	BOCA, State Fire Marshall's Office, Building Code Officials.
18	3	VA	Philly	Dept. of Housing and Community Development
19	2	NJ	Philly	Dept. of Community Affairs has training course to licensed Code officials. However, interest and attendance poor. We assume this is result of mathematical nature of code.
20	3	DE	Philly	Building officials, Code administrators (BOCA), ASHRAE chapter.
21	1	RI	Philly	Governor's Energy Office provides brochures. Building Commission, the Code. Private Energy Consultants, reports.
22	3	PA	Philly	AIA, ASHRAE, Utilities.
23	4	AL	Atlanta	Home Builders Assoc., Auburn Univ., Dept. of Building Science, So. Building Code Congress International, local governments, AL Building Commission.
24	4	FLA	Atlanta	Florida Dept. of Community Affairs, Codes & Standards Sector, Energy Code program. Local government enforcement.
25	4	SC	Atlanta	Various professional organizations.
26	4	USVI	Atlanta	None, but the Dept. of Planning & Natural Resources, USVI will be the primary source of information and enforcement.
27	4	GA	Atlanta	GA Energy Code

ID #	DOE Region	State	Workshop	Response
<i>Question 5: What organizations provide information on building energy code development, adoption, implementation and enforcement of stakeholder groups (i.e., designers, code officials, builders) in your State? Describe how information is provided, to whom and how frequently.</i>				
28	9	CA	Dallas	CALBO, CBIA, CABEC, CEC
29	6	TX	Dallas	SECO, TX Assoc. of Builders, ASHRAE chapters, local government and local builder associations provide information on building energy codes. This information is largely provided through reports, newsletters, presentations at meeting on occasional basis. SECO distributes Energy Conservation Design Standard for New State Buildings.
30	6	AR	Dallas	AR Dept. of Health (Mechanical Code), HUD, ERH, AR Energy Office.
31	9	AZ	Denver	None, but it would be helpful to have a supply of MEC booklets to supply to interested parties.
32	8	CO	Denver	Office of Energy Conservation.
33	9	HI	Denver	No response.
34	10	ID	Denver	ID Energy Division primary provider of information. We have had BPA funds to support NWECA since 1986. We were funded by utilities and ID legislature to provide statewide training and technical assist for ID Residential Energy Standard. Energy Division drafted the rules under IRES standard for Dept. of Labor & Industrial Services and works with other stakeholders.
35	8	MT	Denver	Code officials with some support from the State Energy Office, homebuilders groups, and ASHRAE chapters.
36	9	NV	Denver	NSEO, utilities, builders associations, and code groups (northern and southern ICBO chapters).
37	8	UT	Denver	UT Energy Service
38	8	UT	Denver	State Energy Office
39	10	WA	Denver	Washington State Building Code Council holds monthly committee and council meetings for rulemaking and interpretation. Staff provides daily assist. to code officials, publishes Energy Code book. WSEO has daily hotline for all parties involved in code compliance and enforcement/technical updates - residential training manual, homeowner handbook, Builder's Field Guide, Tip Sheet Brochures, compliance forms, compliance software, residential energy code training scheduled 2-3 times per month. Utility Codes Groups represents BPA and electric/natural gas utilities; provides funding for NREC, produces NREC Compliance Form, Special Plan Examiner/Special Inspector guidelines. Building and Design 2000 represents a consortium of professional associations. Non-Residential Energy Code training, currently scheduled 10-15/month, training session materials and developing training manual; on contract to UCG.

Table 6. Responses to Question 6

ID	DOE	Region	State	Workshop	Response
<p><i>Question 6: What training and/or technical assistance is currently provided in your State to those responsible for implementing designers, architects, engineers) and enforcing building energy codes, and who provides this support? Of these which ones might be useful to other States?</i></p>					
1	5	WI	Chicago	Utilities, DILHR, Professional groups, etc: utility training programs for trades, particularly ones which focus on longterm development of infrastructure for building efficiency.	
2	5	WI	Chicago	Our State agency annual conducts a code-refresher and code update training statewide. Also publish a code commentary. We have code consultation and preliminary plan review services as well.	
3	5	IL	Chicago	See Answer #5: IL BOCA	
4	5	IL	Chicago	No response.	
5	5	IL	Chicago	N/A	
6	5	IL	Chicago	No response.	
7	5	MI	Chicago	Insulation industry, Bureau of Construction Codes, Dept. of Commerce, National Home Builders Assoc., National Home Builders Assoc.	
8	7	KS	Chicago	KS doesn't have a statewide code; training for code officials is provided through State professional organizations. Their meetings regularly include introductory material, code updates and relies on a variety of sources for their programs.	
9	7	KS	Chicago	No training or tech. assistance at present, to my knowledge.	
10	7	NE	Chicago	No response.	
11	7	NE	Chicago	Only that by State Energy Office, using HUD MECCP software.	
12	1	CT	Philly	Enforcement; statutory continuing education for enforcement officials. Design: No mandate; utilities now offer programs for design professionals and builders; professional societies offer programs to their memberships, occasionally.	
13	3	PA	Philly	DCA provides workshops for implementors and a manual. Possibly also handles enforcement.	
14	1	DC	Philly	None known.	
15	1	VT	Philly	DPS sponsored a life-cycle costing workshop conducted by NIST, which was very well done.	
16	1	MA	Philly	No formal training known.	

ID #	DOE Region	State	Workshop	Response
<i>Question 6: What training and/or technical assistance is currently provided in your State to those responsible for implementing designers, architects, engineers) and enforcing building energy codes, and who provides this support? Of these which ones might be useful to other States?</i>				
17	3	WV	Philly	Don't know.
18	3	VA	Philly	Same as #5a. Staff and other professionals; all useful to other States.
19	2	NJ	Philly	Same as #5.
20	3	DE	Philly	Limited assistance provided by County and Municipal enforcement agencies.
21	1	RI	Philly	None
22	3	PA	Philly	No response
23	4	AL	Atlanta	Auburn Univ. So. Building Code Congress International, Inc., Alabama Building Commission
24	4	FLA	Atlanta	Daily technical assistance, manuals, audio visual, instruction manuals, basic & advanced training classes, computer programs to perform Calculations and forms compliance. These services are provided by the Florida Energy Code program staff. Computer programs and training materials most useful to other States.
25	4	SC	Atlanta	Approximately \$250,000 is provided in pending legislation. This is key: get \$\$ funded with initial legislation.
26	4	USVI	Atlanta	None at present. Dec. 1992 workshop conducted by consultants for the Florida Solar Energy Center.
27	4	GA	Atlanta	None that aware of.
28	9	CA	Dallas	CEC provides training to building departments at various stages of development. CBIA/CEC training includes certified examiner program. The telephone hotline, newsletter, on-site training of building departments are all beneficial.
29	6	TX	Dallas	SECO sponsored in 19909 a series of seminars. Center for Energy Studies at UT Austin plans several more, both basic and advanced, in 94-95. In addition, computer version of the standard is under development, as are HVAC performance criteria & renewable energy guidelines/criteria. SECO and UT Arlington with TX Assoc. of Builders is developing an intensive seminar program on CABO MEC for residences. SECO provides limited tech. assistance on an as-needed basis.
30	6	AR	Dallas	AEO, ERH, ADH provide workshops on as-needed basis. AEO workshops still in formation-stage. ADH have only peripheral applicability to energy codes. ERH training is more applicable to other States.
31	9	AZ	Denver	None, no codes.
32	8	CO	Denver	None known.

ID #	DOE Region	State	Workshop	Response
<i>Question 6: What training and/or technical assistance is currently provided in your State to those responsible for implementing designers, architects, engineers) and enforcing building energy codes, and who provides this support? Of these which ones might be useful to other States?</i>				
33	9	HI	Denver	DBEDT has contracts with the MEC contractor and a leading engineering firm to provide training/technical assistance on as-needed basis for the counties. Hawaii's MEC is climate-specific and would apply only to semi-tropical climate zones.
34	10	ID	Denver	The Energy Division provides: tech. assistance to NWECA jurisdictions and others; provides training/technical assistance to builders statewide; provides commercial NWECA support to Idaho Falls & Rupert; provides tech info on MEC and ASHRAE 90.1 to local HUD and VA field offices; is the agency which certifies to DOE under EPAct.
35	8	MT	Denver	State Energy Office provides speakers/training annually to code officials, AIE firms and utilities on specific energy technologies.
36	9	NV	Denver	Training includes design compliance, new construction, HVAC and lighting products, quality construction methods. Trainers are NAHB and ICBO personnel, product vendor representatives, and utility staff. We are anxious to work with PNL and ASE/ACEEE/NRDC's BCAP program.
37	8	UT	Denver	2-hour training workshop in residential MEC provided by self. Actual Code enforcement responsibility of another department, which is not functioning. The simplified MEC Residential workbook would be helpful to others.
38	8	UT	Denver	None
39	10	WA	Denver	No response

Table 7. Responses to Question 7

ID #	DOE Region	State	Workshop	Response
<i>Question 7: What specific types of technical assistance would you like DOE to provide to your State?</i>				
1	5	WI	Chicago	There is a initial need for Technical program management & marketing training for builders, banks, appraisers, building suppliers,etc. Performance incentives should be clear to industry that complies and/or exceeds standards.
2	5	WI	Chicago	Assistance with interpreting ASHRAE and MEC requirements. It would be good to know the intent of the code sections and what assumptions were made and what factors considered when setting each standard.

ID #	DOE Region	State	Workshop	Response
<i>Question 7: What specific types of technical assistance would you like DOE to provide to your State?</i>				
3	5	IL	Chicago	I could envision a need for a broad variety of services, including assistance with developing statewide implementation mechanisms, training of code officials and compliance personnel, and other.
4	5	IL	Chicago	Training/information programs geared to local officials.
5	5	IL	Chicago	Information.
6	5	IL	Chicago	No response.
7	5	MI	Chicago	Training booklets, instructional tapes.
8	7	KS	Chicago	Kansas doesn't have statewide code, therefore training for code officials is provided through State professional organization for code professionals. Their meetings regularly include code updates as well as intro material, relying on a variety of sources for their programs.
9	7	KS	Chicago	We would like assistance in developing simplified energy standards which can be used as a substitute for the specified codes. The ideal would be a standard similar to the thermal standards described in answer to question #1, which could be used as an alternative to the more restrictive EPAct building codes.
10	7	NE	Chicago	No response.
11	7	NE	Chicago	Detailed, friendly computer program to help homebuilders determine compliance and figure out what to change if house doesn't comply. A 1-2 page prescriptive requirements for builders who don't like to figure.
12	1	CT	Philly	ASHRAE Basic Fundamentals (no math, no algebra) for local building officials and architects; "canned" software/Windows for use by contractors on projects where no design professionals mandated by licensing laws; money for acquiring User Manuals /new code language 90.1 + 90.2.
13	3	PA	Philly	Up-to-date database of construction costs, fuel costs, and economic parameters. Software for performing life-cycle cost analysis with ability to look at the specific cash flows, energy savings, and other details. Network of professionals and agencies involved in code development.
14	1	DC	Philly	Stay on top of BOCA!
15	1	VT	Philly	Assistance in determine how to include ASHRAE 90.1 and utility DSM program review in the Act 250 review process. Assistance in developing training on how to meet VT energy requirements. Assistance in developing enforcement capabilities.

ID #	DOE Region	State	Workshop	Response
<i>Question 7: What specific types of technical assistance would you like DOE to provide to your State?</i>				
16	1	MA	Philly	Private sector (architects,engineers,designers, contractor/builder) training.
17	3	WV	Philly	Training on ASHRAE 90.1 and MEC.
18	3	VA	Philly	Funding for training.
19	2	NJ	Philly	We are interested in providing a computerized system of compliance for code officials. Designers would be required to use a program to do energy calculations for a project. The code official would then use the same program to verify project meets code. One such program is currently available from Ball State University.
20	3	DE	Philly	If code revision is approved, a workshop for architects, engineers and designers/builders would be useful. Training for Code enforcement agencies.
21	1	RI	Philly	MEC and 90.1 seminars on "What does it really mean?"
22	3	PA	Philly	No response.
23	4	AL	Atlanta	1.Economics of adopting codes. 2. Training materials. 3. Videos. 4. User Manuals. 5. Computerized Calculation Programs. 6. Software including a cost budgets on energy requirements.
24	4	FLA	Atlanta	See response to Question #2.
25	4	SC	Atlanta	Make code more user-friendly.
26	4	USVI	Atlanta	Technical assistance in the form of training. Having an energy specialist attend a workshop for architects,designers,etc. in reference to incorporating energy codes with our local Building codes.
27	4	GA	Atlanta	Teach how to implement the codes and results in dollars/year.
28	9	CA	Dallas	1. Technical assistance in responding to EPAAct: need specific guidelines for demonstrating compliance (i.e. modeling assumptions? measure-by-measure comparison? analysis method? overall energy comparison or area-by-area? What to assume for reference building? It would be helpful for Battelle to provide sample analysis or specific analysis guidelines. 2. Technical assistance in evaluating new technologies (i.e. radiant barriers) for possible incorporation of code regs. 3. Technical assistance in gathering and disseminating info. on code development/implementation measures that have been successful in other States.

ID #	DOE Region	State	Workshop	Response
<i>Question 7: What specific types of technical assistance would you like DOE to provide to your State?</i>				
29	6	TX	Dallas	DOE should provide support of State activities on adaption and adoption of national standards in Texas. Increased emphasis should be on work with local jurisdictions to assure uniform application of developed standards, and an accelerated pace at which local codes are updated.
30	6	AR	Dallas	Assistance with workshops to train architects/engineers on implementation of ASHRAE 90.1. Training and resource materials (slides,overheads, graphics, manuals,etc.) for training of homebuilders, architects, engineers, utilities, in interpretation of MEC and ASHRAE.
31	9	AZ	Denver	Training for code inspectors. Inspections will be the key to a successful energy code.
32	8	CO	Denver	1. Expert testimony during the adoption process. 2. Training workshops for the building officials. 3. Video describing changes from existing practice. 4. Checklists and compliance worksheets. 5. Compliance software.
33	9	HI	Denver	We would like funding to extend the contracts of the code consultant and engineering firm, so that they might continue to provide services. Assistance in monitoring the effects of implementation of MEC - either before/after measurements or just "after" measurements.
34	10	ID	Denver	DOE should be decisive, prompt to resolve issue of MEC & ASHRAE interpretation for the States. 2. It should ensure that there is only one MEC and ASHRAE 90.1 (not 1 for HUD, 1 for DOE and 1 for other interest groups. 3. DOE should work to make MEC consistent with good building science - right now it has many conflicting, confusing and illogical features. 4. DOE should let the States/groups of States develop their own compliance tools - not impose something developed without local control.
35	8	MT	Denver	1. Assistance tailoring codified version of ASHRAE 90.1 -89 to State needs. 2. Training for code officials in provisions of AHSRAE 90.1-89. 3. Standard outreach and training material that can be adapted to our State's needs.
36	9	NV	Denver	1. Modification of MEC or suggestion of an approved MEC-equivalent, alternative code which addresses solar radiant heat gain and control, enforceability of ASHRAE ventilation requirements. Code requirements for effective radon mitigation is also needed. 2. Analysis of the cost/benefit of such a code compared to existing code adopted by Clark Co. 1/1/94. 3. Builder and code official training on the code: a. design compliance b. construction standards/quality. 4. Energy efficient building products/techniques.
37	8	UT	Denver	Identify and define "gray areas". MEC support to States. Anything else to get the word out.
38	8	UT	Denver	1. Cost effectiveness data - State-specific (utility rates, labor & [national] costs). 2. Speakers and/or curricula. 3. Subsidize ASHRAE training 4. Public education: TV spots or literature for prospective home buyers and <u>renters</u> .

ID #	DOE Region	State	Workshop	Response
<i>Question 7: What specific types of technical assistance would you like DOE to provide to your State?</i>				
39	10	WA	Denver	1. Energy Use Research and Testing on specific code applications. 2. Weather bin data. 3. Code compliance software for NonResidential systems analysis.

Table 8. Responses to Question 8

ID #	DOE Region	State	Workshop	Response
<i>Question 8: How would your State spend technical assistance via grants from DOE with regards to meeting the requirements of the EPAct legislation, and how could these DOE grants be used to leverage other funds that might be available from other organizations?</i>				
1	5	WI	Chicago	From a regulatory perspective, I could see State code and utility regulatory staff working together to promote code compliance and HERS, EEMS, etc. Also, possible a second tier voluntary standard like \$-2000 in Canada. The PSC could use a DOE grant to complete calibration and marketing of the rating system and energy-efficient new construction, leverage by utility and builder/contractor dollars.
2	5	WI	Chicago	1. Development of computer software like ASHRAE's, but modified for our State code. 2. Development of worksheets and training materials to help local enforcement. 3. Development of data collection systems to target problem areas for future code changes.
3	5	IL	Chicago	Although ACEEE has provided us with a draft code, we could use help in finalizing code language and provisions, responding to technical questions related to code language and code implementation, developing enforcement/compliance mechanisms, providing training, perhaps developing/testifying in support of legislation, etc.
4	5	IL	Chicago	No response.
5	5	IL	Chicago	Training grants for workshops and materials.
6	5	IL	Chicago	No response.
7	5	MI	Chicago	Additional training. 2. Development of compliance material.

ID #	DOE Region	State	Workshop	Response
<i>Question 8: How would your State spend technical assistance via grants from DOE with regards to meeting the requirements of the EPAct legislation, and how could these DOE grants be used to leverage other funds that might be available from other organizations?</i>				
8	7	KS	Chicago	DOE grants for training of design professionals, building contractors and code officials will be leveraged with registration fees of participants. Training programs would be designed specifically for each audience; designers, code officials, etc. Rather than a single event, the training would be provided in multiple locations either live or by interactive video. Training would be repeated in successive years.
9	7	KS	Chicago	See #7(develop simplified codes similar to thermal standards). In addition, these funds could be used to help utilities to communicate the new requirements to their customers.
10	7	NE	Chicago	No response.
11	7	NE	Chicago	1. Develop, distribute & train with above materials (1-2 page prescriptive costs worksheet and/or user-friendly software for builders). 2. Revolving loan funds (leveraging 400% from local banks) to demonstrate code compliance to high-end custom builders. 3. Hire or contract with person to devote fulltime to training/implementation.
12	1	CT	Philly	Funding may be leveraged with energy turnback funds not yet depleted.
13	3	PA	Philly	Not sure since I don't know much about EPAct.
14	1	DC	Philly	Not sure.
15	1	VT	Philly	See #7 above (include ASHRAE & DSM review in Act 250 review process). DPS has received \$60K from VT legislature for energy standards (Act 250 and SBECS). DPS would update "Evaluating Energy Conservation Opportunities Under Act 250" and work with utilities to develop a coordinated DPS/ utility DSM review of Act 250 applications. DPS would work with utilities to develop new residential construction DSM programs patterned after the Washington Electric Cooperative program.
16	1	MA	Philly	State Board of Building Regulations and Standards could utilize grants for necessary private & public sector training. An example of leveraging of funds back in 1988: the MA Audubon Society paid for training mtls (?) for initial ASHRAE 90.1 training.
17	3	WV	Philly	Training on ASHRAE 90.1 and MEC.
18	3	VA	Philly	Training.

ID #	DOE Region	State	Workshop	Response
<i>Question 8: How would your State spend technical assistance via grants from DOE with regards to meeting the requirements of the EPAct legislation, and how could these DOE grants be used to leverage other funds that might be available from other organizations?</i>				
19	2	NJ	Philly	We would use these grants primarily for training code officials, etc. on the new requirements. Part of this training might include training on the use of the Ball State program. Additionally, we would use some of the fund to defer the cost of buying the right to the program for our code officials.
20	3	DE	Philly	Grant funds could be used to provide training for code enforcement officials on building energy codes.
21	1	RI	Philly	Not sure!
22	3	PA	Philly	No response.
23	4	AL	Atlanta	1. Assist with developing training materials and conducting workshops. 2. Staff.
24	4	FLA	Atlanta	1. Update the State Energy Code for better compliance with EPAct. 2. Develop a training program necessary to train designer on ASHRAE 90.1-89. 3. Develop user-friendly compliance methods.
25	4	SC	Atlanta	Develop and provide training.
26	4	USVI	Atlanta	Energy office can better respond.
27	4	GA	Atlanta	Restrict building permits if plans presented do not comply with code. Review should be in writing and be specific.
28	9	CA	Dallas	1. Public workshop required by EPAct will initiate involvement by industry groups who will wish to participate in the process but cannot do so without financial assistance. Some funding may go towards ensuring adequate participation from interested parties. 2. Travel expenses as necessary to meet with other State code professionals to share in code development/implementation ideas.
29	6	TX	Dallas	1. Technical assistance grants from DOE would be used to develop a series of case studies showing the direct benefits of standards to various stakeholders. 2. To develop a Home Energy Rating System. 3. To establish a central or regional Codes & Standards compliance review and enforcement system 4. Establish a State codes & standards appeals/arbitration board.
30	6	AR	Dallas	For marketing and enforcement. These funds could be used for creative enforcement by marketing the code with leveraged funds from utilities and lenders. The funds can also be used for communication with public and stakeholders, in addition to workshops.
31	9	AZ	Denver	For education and training: tie DOE \$\$ in with our pre-existing agreement with WAPA targeted at education and training.
32	8	CO	Denver	See answers to #7.

ID #	DOE Region	State	Workshop	Response
<i>Question 8: How would your State spend technical assistance via grants from DOE with regards to meeting the requirements of the EAct legislation, and how could these DOE grants be used to leverage other funds that might be available from other organizations?</i>				
33	9	HI	Denver	Additional funding would allow DBEDT to actively solicit requests for assistance from county officials, county councils & professional organizations. Due to limited funding, assistance is provided only on an as-requested basis. DOE funds would be added funding for tech. assistance to leverage both sources. Funding would serve to meet requirements of EAct legislation by intensifying the education process for all decision-making bodies.
34	10	ID	Denver	The answer to this is a proposal recently submitted to DOE by the Energy Division.
35	8	MT	Denver	Not sure: probably in transitional training/enforcement support. Some possibility of getting some TA or funding assistance from utilities and local ASHRAE chapters.
36	9	NV	Denver	Refer to #7: with reference to 2nd half of this question, NSEO would solicit interest and leveraged funds from Nevada's utilities (i.e. NSEO, Nevada Power Co., EPRI are co-sponsors of a contract with Proctor Engineering Group to evaluate & develop standards for HVAC system efficiency in new construction in So. Nevada.
37	8	UT	Denver	Use of funds could go towards printing & training costs that could be matched by State and utility funds as well as matching funds by suppliers.
38	8	UT	Denver	Educational programs for lenders/appraisers. 2. Educational programs for architects/engineers/designers. 3. Training for inspectors. 4. Demonstration projects.
39	10	WA	Denver	1. Fund participation in national code development and integrate national standards at the State and local level. 2. Study cost/benefit of code installed measures, and participate in evaluation and quality assurance policy analysis. 3. Coordinate with other States/manufactures' associations to create uniform, national requirements for industry. 4. Funding is leveraged by best use of limited energy resources, with the incentive to manufacture energy efficient products. Industry contributes by participation in standards development.

Table 9. Responses to Question 9

ID #	DOE Region	State	Workshop	Response
<i>Question 9: Discuss one example of a utility program in your State that you believe has been very successful in encouraging the design and construction of energy-efficient buildings?</i>				
1	5	WI	Chicago	Madison Gas & Electric Co. has had a new construction program for several years, with and without certification, that seems to enhance a sustainable market for new construction which significantly exceeds the code.
2	5	WI	Chicago	N/A
3	5	IL	Chicago	Not aware of any; however, some of our utilities are presently developing new construction programs.
4	5	IL	Chicago	No response.
5	5	IL	Chicago	None.
6	5	IL	Chicago	No response.
7	5	MI	Chicago	No response.
8	7	KS	Chicago	In the past, the method of enforcement of energy-related codes has been to require confirmation that a building meets the code before permanent utility connections are made to the building. Confirmation is obtained through a written statement by the owner or designer.
9	7	KS	Chicago	Kansas City Power & Light has implemented some guidelines as a part of their demand-side management programs. Most utilities offer some guidance with ground source heat pumps, lighting and other appliance purchases. Majority of the utilities that operate in the State have excess generating capacity (or access to inexpensive purchased power).
10	7	NE	Chicago	No response.
11	7	NE	Chicago	No response.
12	1	CT	Philly	N.E. Utilities' SMART BUILDINGS program.
13	3	PA	Philly	No response.
14	1	DC	Philly	See Attachment A: (fax copy of PEPCO General Information sheet: 1992 New Building Design Program)
15	1	VT	Philly	Washington Electric Cooperative Residential New Construction program.

ID #	DOE Region	State	Workshop	Response
<i>Question 9: Discuss one example of a utility program in your State that you believe has been very successful in encouraging the design and construction of energy-efficient buildings?</i>				
16	1	MA	Philly	"Energy Crafted Home" Program (1 & 2-family detached housing which is constructed to a higher conservation standard than that required by the building code & when heated by electric heat). The Utility will pay for plans, inspections during construction, will pay for a "blower door" test and provides cash incentives of \$.70/sq.ft. up to \$2800.00.
17	3	WV	Philly	No response.
18	3	VA	Philly	No response.
19	2	NJ	Philly	I primarily work with code officials and am not aware of the success rate of the various utility programs.
20	3	DE	Philly	Delmarsa Power has implemented a residential efficiency and home improvement program that has been of some assistance. No others worthy of mention.
21	1	RI	Philly	1. Energy-efficiency rating system by a non-profit organization, Rhode Islanders Saving Energy, (R.I.S.E.). 2. Higher borrowing ratio at banks for energy-efficient homes.
22	3	PA	Philly	Central Main Power's Good Cents Home has only about 10% market penetration.
23	4	AL	Atlanta	Alabama Good Cents Program.
24	4	FLA	Atlanta	N/A
25	4	SC	Atlanta	Citadel project: team effort with utility company user, State Energy Office, DOE, Oakridge Labs to ensure design/construction of energy-efficient building with eye to demand/supply to Citadel.
26	4	USVI	Atlanta	None in existence, but the Dept. of Planning & Natural Resources is ready to initiate one with the assistance of the V.I. Energy Office.
27	4	GA	Atlanta	Peak-load sharing at Georgia Power. If not peak-share, the rate is established per maximum load plus owner pays the year based upon that "high" established load for 15 minutes or more. Owner is severely penalized for "high" peaks.
28	9	CA	Dallas	PG&E's showcase home program has been successful at getting tract developers to install solid foam exterior insulation in many of their homes. PG&E's program offered to showcase energy-efficiency features in a model home and paid for advertising for the home in exchange for the builder agreeing that "x" percentage of his homes would have one or more energy-efficiency measures found in the showcase home.

ID #	DOE Region	State	Workshop	Response
<i>Question 9: Discuss one example of a utility program in your State that you believe has been very successful in encouraging the design and construction of energy-efficient buildings?</i>				
29	6	TX	Dallas	City of Austin Electric utility and its Environmental and Conservation Services Dept. have for years conducted several progressive and successful building energy efficiency programs (energy audits, low-interest loans, appliance rebates, new commercial building construction program, etc.), the most recent of which is the Green Builder Program. These programs seem to have been well received.
30	6	AR	Dallas	None.
31	9	AZ	Denver	Arizona Public Service "Good Cents" program: rebates to builders *up to \$700.00) to build homes to a specific efficiency level. Rebate was dropped recently, participation by builders in the program has also dropped off.
32	8	CO	Denver	No successful program in our State that has encouraged energy-efficient design.
33	9	HI	Denver	The only active utility program to date was a light-efficiency demonstration. The sum of \$3.2 million was allocated to the counties of Honolulu, Maui and Hawaii to demonstrate the use of T-8 fluorescent lamps and electronic ballasts in commercial buildings. Before and after electricity usage measurements were taken. The program was very successful. Consequently, Hawaii Electric is currently petitioning the PUC for permission to launch a \$100-million conversation/conversion? program over a seven-year period.
34	10	ID	Denver	BPA's Super Good Cents program and the Regional Manufactured Housing Acquisition Program (MAP).
35	8	MT	Denver	Our major IOU offers funding for incremental energy design, above current standards. The company also conducts design review with in-house engineering staff.
36	9	NV	Denver	Sierra Pacific Power Company (SPPCO), a Good Cents affiliate utility which serves the northern 2/3 of Nevada, launched a Good Cents new construction program in 1989. In Reno, this program exceeds the requirements of the '92 MEC and is directly responsible for raising the energy-efficiency of 25% of all new hook-ups above the minimum State standard based upon ASHRAE 90-'75, and in general, has strongly influenced energy-efficient building construction practice throughout their service territory.
37	8	UT	Denver	None that comes to mind.
38	8	UT	Denver	PacificCorp/UP+L "(can't read)" has been somewhat successful.
39	10	WA	Denver	Super Good Cents, Energy Smart Design.

Table 10. Responses to Question 10

ID #	DOE Region	State	Workshop	Response
<i>Question 10: If you could provide other States with one "word of advice" in terms of building energy code adoption/upgrade, implementation, or enforcement, what would it be?</i>				
1	5	WI	Chicago	Use the developing market for efficiency and environmental awareness to get "buy-ins" from all the key players. Form partnerships from the beginning of process to include benefits for all key players by creating a sustainable market for efficiency.
2	5	WI	Chicago	Involve enforcement staff in the code adoption/upgrade process. If they feel they had input into the new code they will be more prepared and willing to enforce it.
3	5	IL	Chicago	Illinois is hardly in a position to offer advice to other States concerning an energy code. However, getting a code adopted is usually a political process. Absent a clear federal mandate, some type of consensus-building approach is likely to be necessary if passage of an energy code is to have a reasonable chance (in Illinois).
4	5	IL	Chicago	1. Educate the public to the benefits of energy codes. 2. Provide clear "examples/history" of benefits achieved. Use specific cases. 3. Resolve the conflicts between the various "Energy Codes" and standards.
5	5	IL	Chicago	No response.
6	5	IL	Chicago	No response.
7	5	MI	Chicago	Adoption of a statewide energy code with no local amendments.
8	7	KS	Chicago	Include representatives of all the affected parties in the decision process to adopt the code.
9	7	KS	Chicago	In States such as Kansas, a successfully implemented program would also involve a carefully planned, comprehensive education program before its adoption. Codes should provide some flexibility in requirements of urban areas vs. sparsely settled rural areas.
10	7	NE	Chicago	No response.
11	7	NE	Chicago	No response.
12	1	CT	Philly	Funding may be leveraged with energy turnback funds not yet depleted.
13	3	PA	Philly	No response.

ID #	DOE Region	State	Workshop	Response
<i>Question 10: If you could provide other States with one "word of advice" in terms of building energy code adoption/upgrade, implementation, or enforcement, what would it be?</i>				
14	1	DC	Philly	Get involved with the whole building code adoption process, not just the energy code. This helps establish relationships with other payers and avoids being considered as having "tunnel vision".
15	1	VT	Philly	Training and enforcement are critical. Adequate funding for these as well as to conduct project reviews is necessary.
16	1	MA	Philly	Train everybody; reward those who abide and punish those who do not.
17	3	WV	Philly	No response.
18	3	VA	Philly	No response.
19	2	NJ	Philly	No response.
20	3	DE	Philly	Use existing code agencies to assist the process or other programs that have succeeded in other States.
21	1	RI	Philly	"Simplicity".
22	3	PA	Philly	No response.
23	4	AL	Atlanta	Form a steering committee including suppliers, builders, utilities, architects, code officials, associations, League of Municipalities, etc. Create a Board to oversee the adoption and provide technical assistance.
24	4	FLA	Atlanta	1. Develop the Code through consensus among all impacted parties. 2. Develop a code that provides for several compliance options ranging from simple "prescriptive" to options which provides for design flexibility. 3. Hold public workshops and hearings with the general public to gather comments on the proposed code. 4. Develop training materials, instruction manuals to explain the Code to consumers. Conduct training frequently to train enforcement group(s). 5. Solicit, through the Public Service Commission, utilities' support in providing training and technical assistance to consumers. 6. If possible, develop a certification program for compliance calculations.
25	4	SC	Atlanta	Get legislation passed.
26	4	USVI	Atlanta	It is a vital aspect of design and construction that the general public needs to be considered as being very important to future economical development.
27	4	GA	Atlanta	Make energy code compliance a basic part of obtaining the building permit and ground disturbance permit.

ID #	DOE Region	State	Workshop	Response
<i>Question 10: If you could provide other States with one "word of advice" in terms of building energy code adoption/upgrade, implementation, or enforcement, what would it be?</i>				
28	9	CA	Dallas	1. Balance - while saving energy, the Code must also be practical, enforceable and implementable. 2. Involvement - ensure adequate involvement from designers, enforcement personnel, manufacturers, suppliers, builders, trade organizations, etc. Provide specific mechanisms to ensure that affected groups can and do participate.
29	6	TX	Dallas	Adapt nationally developed standards such as ASHRAE 90.1 and 90.2 and the CABO MEC, rather than devising from scratch your own approach.
30	6	AR	Dallas	1. Use whatever mechanisms and relationships available with utilities to establish an enforcement mechanism and cultivate these relationships early on in the process. 2. Try to use energy codes to consolidate programs for addressing low-income housing weatherization needs.
31	9	AZ	Denver	Quality control in construction: it's the key to an energy-efficient home.
32	8	CO	Denver	Precedents are helpful. Longmont has an insulation inspection program; correct installation of insulation is just as important as the R values that are mandated for the building envelope. Small additional cost but with large savings. 2. Being prepared to justify the entire code is important when going up for adoption. Building consensus and understanding the objections to the various aspects of the code is important.
33	9	HI	Denver	Secure the active cooperation of key engineering and architectural organizations. Have them provide testimony before county councils and other governing bodies. Work closely with either the chair of the county council or the head of the Public Works Committee, or both, to secure their active cooperation. Without their cooperation, a bill to adopt an energy code has little chance of passage. Both of the above measures often involve establishing friendships with key personnel, so that a bond of trust serves to carry legislation over obstacles.
34	10	ID	Denver	1. Involve all stakeholders; don't let one interest group dominate code development. 2. Provide clear and correct technical information; there can be no agreement if the standard is not understood. 3. Work to gain your own understanding of EPA Act and the standards it requires. Insist that the resources to participate meaningfully be provided by DOE.
35	8	MT	Denver	Build the necessary consensus among all key groups. Invest sufficient time to accomplish this.
36	9	NV	Denver	"Supercalifragilisticexpialidocious" or, "To understand the effect of a regulation, one must put himself in the shoes of the regulated." --old Energy Office Wiseman--
37	8	UT	Denver	Up-front training especially to design professionals, cannot be over-emphasized.

ID #	DOE Region	State	Workshop	Response
<i>Question 10: If you could provide other States with one "word of advice" in terms of building energy code adoption/upgrade, implementation, or enforcement, what would it be?</i>				
38	8	UT	Denver	No response.
39	10	WA	Denver	Make it simple.

Appendix F

Workshop Evaluation Comments

Appendix F

Workshop Evaluation Comments

BUILDING ENERGY CODES AND STANDARDS WORKSHOP - EVALUATION SUMMARY May 1994. Chicago, IL.

Eighteen attendees at the Chicago workshop filled out and returned the workshop evaluation form. Some questions contained multiple responses. The number to the left of the response is the number of people who made the comment. Comments are summarized below.

1. Was the format of this workshop useful and what specific changes would you recommend we make to future workshops?

8 - Yes, the format was useful.

Additional comments:

1 - First day flowed best.

Recommended changes:

3 - Need more specifics.

3 - More interactive sessions and less materials and background discussions to allow for questions and answers.

3 - Day 2 needs more structure.

2 - Move slide presentation to start of the workshop.

1 - Restructure to mix presentations and discussions.

1 - Add more discussion of how to sell energy efficiency to lenders, builders, and the general public.

1 - Day 2 should have stayed with prepared questions.

1 - Modify format to focus on various players.

1 - Split into parts, one for those implementing and one for enforcers.

1 - Send "Tomorrow Energy Today" brochure out in advance.

1 - Handouts should be a summary of the talk - they are too long.

1 - Second day should be reorganized to better group topics.

2. What sessions of the workshop were most useful/informative for you?

6 - Dave's overview of the code development process and history.

6 - Second day discussions.

3 - First day discussions.

3 - Group discussions/brainstorming.

2 - Priority setting discussion on day 2.

2 - Linda Connell's was good, but needs more upfront discussion of climate maps and compliance model to help our understanding.

1 - Status of the national codes.

1 - Overview of standards.

1 - All sessions.

1 - Support materials available to the States. This helps keep us from duplicating efforts.

- 1 - EPAct presentation.
 - 1 - Sessions were useful, but more "beef" is needed.
3. Are there additional topics you would have liked to see covered at the workshop?
- 2 - Overview of contents of MEC and ASHRAE.
 - 2 - More time devoted to process and implementation issues.
 - 1 - I need data/studies that will enable me to sell energy efficiency to end users (builders, rehabers, lenders, landlords, home owners)
 - 1 - Step by step process for doing codes and marketing the program.
 - 1 - Allow States that have implemented codes answer questions and help other States direct their efforts.
 - 1 - How to build consensus.
 - 1 - DOE requirements for EPAct and fundingshould be more clearly defined.
 - 1 - More focus on DOE to find things out "from the horse's mouth".
 - 1 - Take topics identified during day 2 and organize a series of presentations.
 - 1 - Better explanation of what EPAct means to States.
 - 1 - More specifics on possible ways of enforcing codes and providing code officials with training.
 - 1 - More detail on State by stated implementation of codes and standards.
 - 1 - Split sessions into residential and commercial.
 - 1 - Provide a list of all services available through DOE/PNL (software, speakers, trainers, etc.).
 - 1 - Info on support materials available.
 - 1 - More info on cost/benefits of code use.
 - 1 - Status of State efforts.
 - 1 - Financing and ties to primary and secondary market.
 - 1 - Coalition building around energy-efficient buildings, developing a national marketing strategy, and State and local efforts.
4. Should we eliminate any sessions from future workshops? Why?
- 8 - No comment.
 - 3 - No, all sessions were useful.
 - 4 - "History of Codes and Standards" was interesting but time could have been better spent on more critical information.
 - 1 - Such detail on the history of codes was not very useful to me - but very well delivered.
 - 1 - Less time on background and more time on process and implementation.
 - 1 - Slide presentation on day 2 unnecessary or should be shortened. More discussion would have been better.
 - 1 - First overview was much too long.
5. What (if any) stakeholder groups (i.e., designers, builders, code officials) do you believe would benefit from a similar workshop?
- 6 - Builders.
 - 5 - Code officials.
 - 4 - Lenders.
 - 3 - Appraisers.

- 2 - Designers.
- 2 - Utility representatives.
- 1 - Auditors.
- 1 - Consumer advocates.
- 1 - Legislators/commissioners.
- 1 - Manufacturers.
- 1 - Stakeholder workshops should be more localized - organized by DOE regional support office.
- 1 - National organizations for building trades.
- 1 - Target different groups at each session and focus on their concerns/interests/contributions. Then put together a plan.
- 1 - Stakeholder groups would want more hands on and interactive sessions.
- 1 - Focus on States now and do stakeholder groups later.

6. Did this workshop provide opportunities to network? Was this useful?

- 12 - Yes.
- 1 - Breakout sessions would help even more.
- 1 - more breaks.
- 1 - Yes, but diversity of the group was a bit of a barrier.
- 1 - Send out list of attendees asap.

7. Were the presenters and facilitators effective and helpful?

- 13 - Yes.

Additional comments:

- 1 - Dave Conover and Jeff Johnson were excellent!
- 1 - DOE headquarters could be more familiar with material.

BUILDING ENERGY CODES AND STANDARDS WORKSHOP EVALUATION SUMMARY
May 19-20, 1994. Philadelphia, Pennsylvania

Thirteen people at the Philadelphia workshop filled out and returned the workshop evaluation form. Some questions contained multiple responses. The number to the left of the response is the number of people who made the comment. Comments are summarized below.

1. Was the format of this workshop useful and what specific changes would you recommend we make to future workshops?

9 - Yes.

4 - No comment.

Additional comments:

2 - This format encourages participation.

1 - Table arrangement was great.

1 - Attendee participation was unusually informative. This kind of interaction is usually not very worthwhile.

Recommended changes:

1 - One day format easier to schedule for me.

1 - Hold individual sessions on commercial, residential, voluntary standards.

1 - Need time to formalize follow-up.

1 - Need time to meet individually with PNL staff.

1 - Include time for each State to express what they are doing at each workshop session.

1 - Could have used more time in all sessions.

1 - Handouts of subject matter covered would have been useful, especially for later review.

1 - It is evident when there are more DOE, DOE Support office and PNL people in attendance that more money for travel should be provided to States.

1 - Even though EAct is law, all are State-confronted with the "trojan horse" style of implementation. Ideally, federal law should be easy to implement.

1 - Get DOE's legal staff to issue the "appropriate" interpretation of EAct so that implementation can be direct and not "clandestine".

1 - Bring a copy of each PNL report or just a cover sheet with a summary-abstract so people can see what is available.

2. What sessions of the workshop were most useful/informative for you?

3 - All sessions.

2 - EAct Requirements.

2 - Question and answer sessions.

1 - Role of DOE.

1 - Finding out what other States & DOE are doing.

1 - DOE/HUD Activities.

1 - Implementation.

1 - Networking.

1 - Compliance Software.

1 - Legislative Reviews & Projections.

3. Are there additional topics you would have liked to see covered at the workshop?
 - 6 - None needed.
 - 1 - More clearly define what EAct requires/suggests States to do and what States "might" do to convince legislature into accepting EAct.
 - 1 - Follow-up session in the fall on status of enactment & use of support materials being developed.
 - 1 - Coordination problems of other related standards: how to initiate some resolution (e.g. NFPA 31, 54 for combustion air definitions, standards).
 - 1 - Covering too many topics in too little time.
 - 1 - An organizational chart of US DOE, Regional office, PNL.
 - 1 - Legal interpretation of what EAct says.
 - 1 - More on the FEMP position, status & program implementation plan (their energy code).
 - 1 - DOE should provide a letter to the States saying how EAct code section is addressed, especially for a State with no energy codes and ways to justify EAct.
4. Should we eliminate any sessions from future workshops? Why?
 - 10 - No, all are needed.
 - 3 - no comment.
5. What (if any) stakeholder groups (i.e., designers, builders, code officials) do you believe would benefit from a similar workshop?
 - 3 - Utilities.
 - 2 - All.
 - 3 - Homebuilders.
 - 2 - Lenders.
 - 2 - Local governments.
 - 2 - Designers.
 - 2 - No comment.
 - 1 - Realtors.
 - 1 - Regulators (mechanical, code people, BOCA).
 - 1 - Municipal/local code enforcement officials.
 - 1 - Unions.
 - 1 - Trade associations.
 - 1 - Building owners and Managers Associations (BOMA).
 - 1 - Model code organizations.
 - 1 - Statewide municipal governments.
6. Did this workshop provide opportunities to network? Was this useful?
 - 13 - Yes
 - Additional comments:
 - 1 - A reception, even if we need to pay for it, would be nice.

- 1 - We now plan to arrange an in-State conference with involvement of PNL.
- 1 - The forum to bring regional States together was helpful.

7. Were the presenters and facilitators effective and helpful?

12 - Yes

1 - No comment.

Additional comments:

1 - Extremely good job!

1 - The presenters were exceptionally well versed with the codes; very relaxed delivery; well organized program; aggressive/effective plan in gathering a good cross-section of attendees & participants.

1 - Very effective, helpful, and extremely professional.

1 - Very well done and very useful.

1 - Presenters were all top-notch -- they all knew their material.

1 - Jeff Johnson & Dave Conover presentations were particularly useful.

BUILDING ENERGY CODES AND STANDARDS WORKSHOP EVALUATION SUMMARY

May 23-24, 1994. Atlanta, Georgia.

Ten people at the Atlanta workshop filled out and returned the workshop evaluation form. Some questions contained multiple responses. The number to the left of the response is the number of people who made the comment. Comments are summarized below.

1. Was the format of this workshop useful and what specific changes would you recommend we make to future workshops?

10 - Yes

Additional Comments:

- 1 - I particularly favor this format with session running 1.5 days. Session kept my interest.
- 1 - Visual aids were great.

Recommended changes:

- 1 - Move Day 2 to Day 1 but start earlier both days.
- 1 - Should be longer. We should meet on regular basis.

2. What sessions of the workshop were most useful/informative for you?

- 2 - ASHRAE 90.1 + 92 MEC -- technical side, 2nd day.
- 2 - Dave Conover history of codes/standards.
- 2 - Eric Makela concrete steps & examples of enforcement.
- 2 - Implementation materials.
- 2 - All sessions.
- 1 - Role of DOE; EPACT Regulations; HUD/DOE Activities.

3. Are there additional topics you would have liked to see covered at the workshop?

- 4 - Nothing else needed.
- 2 - Discuss cooling degree days in the South.
- 1 - Steps in the building design process.
- 1 - More discussion of 90.2.
- 1 - Expand on implementation /enforcement.
- 1 - Pass out example check lists.
- 1 - Discuss funding resources in more detail.
- 1 - Have examples of State legislation.
- 1 - More detail on what is in the DOE pipeline in terms of technical support materials.

4. Should we eliminate any sessions from future workshops? Why?

- 9 - No
- 1 - Yes. Don't need background stuff. Afternoon of the 1st day not needed.

5. What (if any) stakeholder groups (i.e., designers, builders, code officials) do you believe would benefit from a similar workshop?

6 - All; designers, builders, building officials and inspectors, material suppliers.

1 - First be sure government (enforcers, etc.) are trained before getting training to designers, builders, etc.

1 - HUD field office A&E staff.

1 - None.

6. Did this workshop provide opportunities to network? Was this useful?

10 - Yes. *Many attendees commented that this was a very important aspect of the workshop.*

7. Were the presenters and facilitators effective and helpful?

10 - Yes. *Many attendees said the presenters were great!*

BUILDING ENERGY CODES AND STANDARDS WORKSHOP EVALUATION SUMMARY

June 2-3, 1994. Dallas, Texas.

Fifteen people at the Dallas workshop filled out and returned the workshop evaluation form. Some questions contained multiple responses. The number to the left of the response is the number of people who made the comment. Comments are summarized below.

1. Was the format of this workshop useful and what specific changes would you recommend we make to future workshops?

7 - Yes.

4 - No Comment.

Additional comments:

1 - Organized and timely.

1 - Size, location, substance, were very good.

1 - Two-day format is just right.

1 - Listing all attendee expectations is good.

1 - I expected more quantitative information. However, the methodology approach was interesting because it gave me an appreciation for the planners problems.

Changes to future workshops:

2 - Have hard copies of presentations available before presentation so we can take notes on them.

1 - Time factors presented a few problems.

1 - This room has the worst acoustics I've ever seen (heard).

1 - I could not hear the attendee introductions.

2. What sessions of the workshop were most useful/informative for you?

6 - EPart Requirements.

4 - Status of codes in the States.

4 - MEC implementation materials.

2 - Code History.

1 - The last session.

1 - Climate Change Action Plan.

1 - HERS.

1 - Application to construction.

1 - Questions & Answers from States.

3. Are there additional topics you would have liked to see covered at the workshop?

5 - No comment.

3 - None needed.

1 - More ways to illicit information for discussion from State participants.

1 - Status of codes in States outside Region 6,9.

1 - How States deal with fact that measures contained in 92 MEC and 90.1 may not be cost-effective in their State.

1 - What are the long-range implementation plans of DOE to support 90.1 and MEC?

1 - Invite speakers from other States to share their situations/experiences.

- 1 - Specific training ideas.
 - 1 - More information on enforcement, not just training.
 - 1 - Invite a local builder and get their perspective for 30 min. or so.
 - 1 - Specific details of implementation of EPart requirements - more hands-on information.
 - 1 - Review updates of the different codes.
4. Should we eliminate any sessions from future workshops? Why?
- 9 - All sessions were useful.
 - 4 - No Comment.
 - 1 - Some of beginning "fluff".
 - 1 - Needs improvement: MEC implementation materials presentation needs more of explanation of the worksheet.
 - 1 - Needs improvement: design issues presentation plowed a lot of "old ground". Also the role of engineers in the standards implementation was omitted.
5. What (if any) stakeholder groups (i.e., designers, builders, code officials) do you believe would benefit from a similar workshop?
- 4 - Designers.
 - 2 - State code officials.
 - 2 - Builders.
 - 2 - Code officials.
 - 2 - No comment.
 - 1 - Bankers.
 - 1 - Local governments.
 - 1 - Legislators.
 - 1 - All.
 - 1 - HUD field office.
 - 1 - State health/fire marshall.
 - 1 - These entities would benefit more from the "nuts & bolts" of using EPart and ASHRAE. Let them know what their responsibilities are.
6. Did this workshop provide opportunities to network? Was this useful?
- 13 - Yes.
 - 2 - No comment.
- Other comments:
- 1 - It was very useful to meet PNL and DOE (Washington) staff and other States. However, meeting people from other States was informal - a more formal approach would have been useful.
 - 1 - Yes, but not in my field.
7. Were the presenters and facilitators effective and helpful?
- 14 - Yes.
 - 1 - DOE headquarters discussion of DOE's role was not particularly useful. It doesn't sound like DOE is in a position to offer much support to the States.

BUILDING ENERGY CODES AND STANDARDS WORKSHOP

June 16-17, 1994. Denver, Colorado.

Fourteen people at the Denver workshop filled out and returned the workshop evaluation form. Some questions contained multiple responses. The number to the left of the response is the number of people who made the comment. Comments are summarized below.

1. Was the format of this workshop useful and what specific changes would you recommend we make to future workshops?

12 - Yes.

2 - No comment.

Additional Comments:

1 - Overall, the workshop was the right length.

1 - This workshop was very helpful due to my inadequate understanding of energy codes & standards.

1 - Please send list of concerns, issues brought up by all participants.

1 - Put attendees automatically on "mailing" lists.

Recommended changes:

1 - A bit longer with more breaks for networking.

1 - You guys did a great job! Should consider allowing a little extra time on the second day.

1 - Provide a notebook that has all the overhead material in it in order of the agenda.

1 - Excellent! The only change is to add a little more time for questions. As you know, we are all "sponges" for information.

1 - Put implementation discussions first.

1 - On opening session, should cover all the driving forces, i.e. history of the energy requirements and how they tie together. Then get into EPAct, MEC and ASHRAE overviews, then into the status each State and special topics like training and design issues and implementation.

2. What sessions of the workshop were most useful/informative for you?

1 - All sessions.

6 - Implementation-related topics.

5 - Training Code Officials.

3 - EPAct legislation.

2 - Everything on 2nd day.

2 - HUD related news.

2 - Overview of Code process.

2 - MEC.

1 - Marketing.

1 - HERS.

1 - Not technical details, but the political realities of getting codes put in place and enforced.

1 - All Jeff Johnson's presentations.

1 - All Dave Conovers's presentation.

1 - Generally saw that PNL is now consumer-orientated and user-friendly.

- 1 - ASHRAE.
- 1 - List of contacts.
- 1 - Status of codes in the States.
- 1 - Design issues.
- 1 - One-on-one networking.
- 1 - There were presentations on all issues relating to adoption and implementation and encouragement of energy-efficient design in general.
- 1 - The follow-up is what is most important.

3. Are there additional topics you would have liked to see covered at the workshop?

- 4 - No additional topics needed.
- 1 - More detail on most of the topics.
- 1 - Political background - from Congress to local level.
- 1 - More on marketing.
- 1 - Forming partnerships with local jurisdictions.
- 1 - Retrofit housing market.
- 1 - Design & construction strategies for energy-efficient improvements.
- 1 - Issue of code interpretation: who should builders code officials and others call regarding issues as they come up?
- 1 - Need for quality energy-efficient installation standards manual for use by designers, builders, code officials and others.
- 1 - Abbreviated descriptions of codes and how they affect current practice.
- 1 - Discussion of adoption of codes by States that already have codes.
- 1 - A further discussion of Jeff's comments on reaching owners with triple net leases and convincing them energy-efficiency is worth their attention would be worthwhile.
- 1 - Code compliance.
- 1 - Public relations/education materials, press releases, etc.
- 1 - Shorter on policy and longer on technical details. Beef up the presentations and then facilitate audience participation and discuss, debate and answer technical details.
- 1 - It might be useful to have a point-counter-point, or informal debate, or something that more thoroughly develops multiple (and conflicting) viewpoints.
- 1 - There was no information on how to perform "partnerships" with local jurisdictions.

4. Should we eliminate any sessions from future workshops? Why?

- 8 - No, all are needed.
- 3 - No comment
- 1 - Yes, "History of Codes" is superfluous. Just concentrate on what is required.
- 1 - Yes, EPart requirements - Codes should be part of an overall goal of the State energy offices. EPart just helps in adding one additional reason to have better codes.
- 1 - Erik Sikkema's (NCSL) presentation provided no new information.

5. What (if any) stakeholder groups (i.e., designers, builders, code officials) do you believe would benefit from a similar workshop?

- 2 - All groups.
- 7 - Designers.
- 4 - Builders.
- 3 - Code enforcement officials.
- 2 - State & local building officials.
- 1 - Local & State elected officials.
- 1 - Contractors.
- 1 - Code committee persons.
- 1 - Utility DSM staff.
- 1 - This type of workshop seems too general for other stakeholders.

6. Did this workshop provide opportunities to network? Was this useful?

- 13 - Yes.
- 1 - No comment.
- 3 - More time could have been assigned to networking.
- 1 - Excellent opportunity. This was one of the major benefits of the workshop.
- 1 - This was the biggest benefit for me.
- 1 - Very important aspect of the workshop - putting faces to the federal names goes a long way in developing rapport.

7. Were the presenters and facilitators effective and helpful?

- 13 - Yes.
 - 1 - No comment.
- Additional comments:
- 1 - Very well organized and very helpful to States.
 - 1 - Not only were they effective, their presentation skills were, with few exceptions, very good.
 - 1 - The workshop clearly had the best presenters of any workshop I've attended. If you make codes interesting... as you did....you deserve alot of credit.

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