

# National Evaluation of the Weatherization Assistance Program

Network Planning Committee Meeting  
March 23-24, 2005  
Meeting Notes

## I. Attendees (by affiliation)

### *State Representatives*

Jeff Ackermann, Colorado  
Peggy Colvin, Texas  
Patrick Costello, New York  
Jeff Dockter, Wyoming  
Dan Elliott, Oregon  
Cherry Ivey, Georgia  
Jules Junker, Vermont  
Tim Lenahan, Ohio  
Jim Newton, Iowa  
Larry Palmer, Arkansas  
Kane Quenemoen, Montana  
Clarice Sabree-Sylla, New Jersey  
Howard Sage, North Dakota  
Carl Saueressig, Wisconsin  
Bob Scott, West Virginia  
Mo Srour, DC  
Evans Taylor, North Carolina

### *Federal Representatives*

Rob DeSoto, Central Region (*via telephone*)  
Jean Diggs, Headquarters  
Melissa Gallagher-Rogers, Headquarters  
Buddy Garland, Headquarters  
Mike Gonzalez, Headquarters  
Mike Peterson, Midwest Region

### *Local Representatives*

Kip Bowmar, Kentucky  
Gene Brady and Kathy O'Neill, Pennsylvania  
Russell Clark, Arizona  
Dave Finet, Washington  
Landon Halverson, Utah  
David Hepinstall, New York  
Bob Jackson, Missouri  
Elliott Jacobson, Massachusetts  
Bob Jones, Wisconsin  
Thomas Richert, Iowa  
Sallie Surface, North Carolina  
Ben Watts, North Carolina

### *Other*

Bob Adams, NASCSP  
Joel Eisenberg, ORNL  
Katherine Foote, Central Region Contractor  
Ed Gerardot, Indiana Training Center  
Alex Moore, D&R  
Meg Power, NCAF  
Greg Reamy, Retired DOE  
Cynthia Simonson, D&R (*facilitator*)  
Mark Ternes, ORNL (*via telephone*)  
Bruce Tonn, ORNL (*via telephone*)  
Bill Van der Meer, PA Training Center

## II. Setting the Stage

(Note to Joel: Do you want to insert anything here?? Obviously, I don't have anything "charted" from this segment nor from Buddy's opening remarks...)

## III. 1990 Most Valuable Data

What results from the previous national evaluation proved most useful and for what purposes:

- < Selection of measures (reduced the number of storm windows and doors being replaced within the program)
- < Audit findings – led to the requirement for a computerized audit
- < Leveraging
- < Mobile Home techniques were revised (MHEA)
- < Identified the need for a small multi-unit audit
- < Improvements in the hot climate programs
- < Identified that highest users were, in fact, the highest savers

#### **IV. 1990 Least Valuable Data**

What results (or lack of results) show areas where we should see improvement in this evaluation:

- < Didn't deal sufficiently with health and safety issues
- < There was no baseload component in the 1990 evaluation
- < Blower door information was insufficient
- < Couldn't get "state specific" data (information unique to individual states)

#### **V. Current Landscape**

The network committee was challenged to brainstorm how the program and its operating environment have changed since 1990 and the impact those changes may have on the evaluation purposes, methods, and implementation. The following are the results from that discussion/brainstorming exercise:

- < We now question what is a "Weatherized House"
- < Need to quantify the impact of training
- < Host of health and safety questions that must be addressed before weatherizing a house
- < Importance of cooling measures
- < Challenges related to having individual audits for different housing stock
- < Education for everyone
- < Weatherization is not applicable "exclusively" for low-income
- < House inhabitants can greatly impact the results of work performed
- < Impact of "green building"
- < Need more marketing and public relations
- < Mold issues and other indoor air quality concerns
- < Environmental concerns
- < Fuel prices have increased dramatically
- < Furnace repair and replacement is a more prevalent measure installed
- < 2000 census findings
- < Automation of our society – Web-based applications; internet opportunities
- < Adoption of standardized procedures
- < Client Education
- < Energy Education
- < Utility involvement/perspective
- < Leveraging processes and strategies
- < Housing stock and the increased number of houses eligible (re-weatherization)
- < Dramatic increase in multi-family dwellings
- < Increased insurance costs

- < Bill payment
- < Expectation for weatherization agencies to do more with less
- < “Branding” successes – “Weatherization Works” and house logo
- < Inclusion of baseload measures in Appendix A
- < Concerns of making a house “too tight”
- < Move from crew-based labor to contractors
- < Audit credentials required
- < Diagnostic techniques (universal)
- < Lead-based paint activities/concerns
- < New tools available in the field
- < Increase in mobile home completions across the country
- < New technologies and techniques applied to mobile homes
- < Computer savvy clients (ability to log complaints instantly through email)
- < Professionalism of the weatherization network
- < Decrease of the materials average
- < Difficulty with retention of staff due to wage constraints
- < Weatherization “identity crisis”
- < Better technology but smaller opportunities
- < SIR requirements – previously it was just averages
- < Multi-family – Energy Management Systems requires more training
- < Choices available in evaluation
- < Program is not the “social services” program it was back then
- < Weatherization is a market transformation force now
- < Program spawns other “technical” industries
- < Lower percentage of total Weatherization funding comes from DOE than in 1989
- < Changes in the environment in which Weatherization operates (e.g., fee for service, systems benefits charges)

## VI. Goals and Priorities

The committee was challenged to identify possible goals of the new evaluation. The following are items brainstormed by the committee. They have been grouped into rough categories for the purpose of determining the highest priorities. **Bold** items are the items determined priorities for the committee and are considered in more detail in section VII below.

Several network committee members suggested this list be transferred to the upcoming “Weatherization Plus” committee for consideration. Items suggested but not part of the final priorities include:

### *Process – Grantee/Grantor Focus*

- < How states collect data
- < Profile of who we weatherize
- < Allocation per state (determining unmet need)
- < State benefits from routinely evaluating their program
- < Changing metrics – focusing on energy savings rather than production numbers

### *Impacts of Technical Transfer*

- < **Do different approaches to training result in higher or lower savings**
- < **Technical monitoring effects**

- < Administrative monitoring effects

#### *Non-Energy – Household*

- < **Quantifying non-energy impacts**
- < Impacts of weatherization on individual sustainability and self sufficiency
- < Assistance to low-income families versus landlords
- < What clients say we can do differently

#### *Non-Energy – Community*

- < Relationship between Weatherization and Affordable Housing
- < Weatherization's reduction of ratepayer subsidies
- < Impact on economic development
- < Determining how long a low-income house weatherized stays low-income

#### *Implementation Process*

- < **Computerized audits versus priority lists and which performs better**
- < Effects of bulk purchasing on agency operations
- < Who is benefiting most from weatherization
- < Owner/rental – fund distribution nationally
- < **Effectiveness versus efficiency**
- < Cost factors and cost-effectiveness
- < Variety of ways to run a program
- < Management issues

#### *Energy Savings – Measures*

- < Impact of lower materials investment on the program
- < How effective are “only DOE” programs versus DOE plus multiple funding sources
- < Winning and losing energy savings (by housing type, fuel type, climate zone)
- < Bringing together cost-benefit ratios
- < **Substantiate cooling measures**
- < **Impact of baseload measures**
- < **Impact of client education**
- < **Potential of measures in “Controlled” versus “Real World” conditions**
- < Cost spread on comparable measures
- < Individual versus combination of measures installed in different stock
- < What is a “Weatherized House?”
- < Persistence of Weatherization measures

#### *Energy Savings – Applications*

- < Lost opportunities because you can't do it all
- < High performance agency/state missed opportunities and characteristics (including what are the break even points for investments)

#### *Evaluating Techniques*

- < Metering versus bill analysis
- < Having usable data numbers (taking the national numbers and being able to determine state level numbers)

## Outcomes

- < Having results generated on a state-by-state basis
- < Satisfy OMB concerns/requests

## VII. Group Goals and Priorities

From the brainstormed list, the following nine items were determined to be the highest priorities for the network group. The following provides brief notes on why these specific items should be addressed in this national evaluation. *(Note, the order represented here does not reflect the priority order of the items by the committee, merely the order in which the items were addressed.)*

### 1. We should include Client Education in this evaluation

#### *So that...*

- < We know the impact of our efforts
- < Specific types of client education can be identified
- < Persistence of the education can be measured
- < We determine what is being delivered/used
- < We successfully measure the effects of client education
- < We determine how demographics affect the client education effectiveness
- < Cost investments channeled through client education is justified
- < We improve the clients' health and safety
- < We know who is most effective in delivering client education (crew chief, client ed specialist)
- < We determine on a measure basis how client ed affects weatherization rates
- < Results can measure the minimum involvement (dropping off a pamphlet) against time investment with the client
- < Data can determine the effect of client education on the longevity of the measures installed
- < We have data documenting what methods are most effective

### 2. We should include Baseload Measures in this evaluation

#### *So that...*

- < We address concerns of electric utilities
- < This new service that Weatherization provides is actually validated on a national basis
- < We know these are effective in the event these are the ONLY measures installed in a house
- < We have reasonable expectations of baseload measures
- < Freezer replacement is proven to be a valid measure
- < Electric savings are calculated on all houses
- < We have an electric MBTU savings rate
- < The lifetime estimate of baseload measures can be validated
- < We have "utility" language in our lexicon
- < Documentation is available to support the ratepayer issues in many states

### 3. We should look at specific Hot Climate/Cooling Measures

*So that...*

- < We know definitively what the load factors are (specifically where central cooling systems are found)
- < We need to substantiate the assistance and savings in the hot climate states
- < Effectiveness of window units is determined
- < We determine the level of investment required to get the savings needed to be cost effective
- < Specific housing stock unique to hot climate areas is evaluated
- < Effectiveness of shading factors is determined
- < Health and safety concerns (e.g., unvented space heaters) is addressed
- < Cooling savings, with heating savings, is accounted for
- < We determine the best savings on imbedded parameters

**4. We should look at Measures in a Comparison Environment versus “Real World”**

*So that...*

- < We isolate the direct effect of a specific measure (pre, post, during)
- < The findings/savings will be more accurate
- < Protocols can be validated (audit findings versus metering data)
- < We are able to quantify the savings potential (by region, by household, by climate)
- < We have something to compare to PRISM
- < We have tracked savings in oil-heated homes
- < Hot Climate-specific conditions and stock are addressed and measures installed are validated

**5. We should Quantifying Non-Energy Impacts in this evaluation**

*So that...*

- < If the SIR is less than one, we can still justify why we should weatherize the house
- < We systematically lay out areas where Weatherization deserves to get credit
- < Total costs can be compared against the total benefits (energy and non-energy)
- < Health and safety issues and incidental repairs can be justified
- < There is synergy for multiple funding sources
- < We lay the groundwork for partnerships between Weatherization and Affordable Housing organizations
- < Human comfort is addressed/considered
- < Sustainability issues are addressed
- < We have a way of identifying the “spill over” effect
- < We are able to analyze the economic impact of the evaluation
- < Value of specific efforts can be justified (client education)
- < Emission reductions are identified and credited to weatherization work
- < (Include list from the Schweitzer study)
- < Urban and rural perspectives are included
- < Market transformation impacts on the community are identified

**6. We should evaluate Computerized Audit against the Priority Lists**

*So that...*

- < We can determine if the applying a priority list that is specific to housing stock (as determined by the computerized audit on vast sampling) but not on a specific

dwelling unit is as effective as doing an computerized audit on each individual house

- < Audit cost-effectiveness is determined
- < We know definitively what is more effective/better
- < Cost differences are documented for doing one or the other
- < Skill level requirements are validated and if the same quality of work is yielded from both processes
- < We know what the marginal cost/benefit of doing the individualized audit
- < Determination of the personnel requirements is validated for one or the other
- < Delivery process is documented

**7. We should evaluate agency Effectiveness versus Efficiency**

*So that...*

- < We have valid production outcomes
- < We determine the “break even” point beyond 1.0
- < We know we are getting the maximum benefit for the lowest investment
- < High performers are identified and other states/agencies can emulate their approaches
- < As a network, we are able to identify the criteria for “high performers” and we are able to look at their overall program and costs
- < Quality assurance and quality control issues are addressed

**8. We should evaluate our Training methods**

*So that...*

- < We know where we have higher and lower savings
- < We can determine if there is a method that leads to higher staff retention
- < We know the impact of certification on the quality of work and effectiveness of weatherization measures
- < Training responsiveness is determined
- < Flexible versus rigid approaches are compared
- < Field training is compared to classroom training and the effectiveness of each is validated
- < Various training approaches are review and retention levels are determined
- < Management training requirements are documented (skill levels necessary to effectively manage multiple resources and leverage additional funding)
- < Frequency of training is addressed
- < Trainer qualifications can be determined
- < Training center effectiveness is documented
- < How best to train contractors is reviewed and addressed
- < How the T&TA is spent is validated
- < Validation that increased training correlates to better energy savings

**9. We should evaluate our Technical Monitoring approaches**

*So that...*

- < We know what role technical assistance has in monitoring
- < We know whether it is cost-effective
- < Validation is available that post-work inspections are done properly
- < Correlation between frequency and overall effectiveness is determined

- < We have an assessment of the national status
- < We can compare approaches – monitoring work in process versus after the fact
- < We know whether 100% approach complicates the issue
- < Client education factors are considered
- < We know the effectiveness of having the program monitored by individuals that do not “report” to Weatherization agencies
- < Consistency between/among monitors is determined (where there is more than one monitor for a state)
- < Effectiveness of subcontracting the monitoring is assessed
- < Best practices for monitoring are determined and evaluated
- < Effectiveness of peer monitoring is determined
- < Qualifications of monitors is established

*(Note – Committee believed there should also be an administrative monitoring component included)*

### **VIII. Available Data Resources**

The following is data sources pertinent to the specific priority areas identified by the network committee:

#### **1. Client Education**

- < PACE – Ohio (Tim Lenahan will follow up)
- < Ohio Weatherization Evaluation
- < Ohio Electric Evaluation
- < DC – Client Workshop
- < Massachusetts Electric (99)
- < Wisconsin Evaluation
- < University of Georgia Study
- < States with data related to client ed protocols – GA, TX, MT, KY, OR, NC, DC

#### **2. Baseload**

- < Ohio Weatherization Evaluation
- < Massachusetts – Utilities on Baseload
- < Wisconsin Evaluation
- < NYSERDA Study

#### **3. Hot Climate/Cooling Measures**

- < Ohio Weatherization Evaluation (looked at electric usage)
- < Check Me – Ohio and Indiana
- < Arizona – Data related to pre- and post-

#### **4. Comparison Environment versus “Real World”**

- < New York (mid-90s)
- < NREL – Mobile Homes study
- < Current MHEA validation
- < Texas Field Study
- < Oregon – Remrate (Results should be available by June 05)

5. **Quantifying Non-Energy Benefits**
  - < ORNL
  - < ROMA
  - < Vermont Evaluation
  - < Ohio Weatherization Evaluation (last and current)
  - < Wisconsin Evaluation
  - < EOS Databases
  - < EPA Website on Pollution Reduction studies
  - < RECS
  - < Lisa Skumatz
  
6. **Computerized Audit versus Priority Lists**
  - < Ohio Weatherization Evaluation
  - < Wisconsin Evaluation
  
7. **Effectiveness versus Efficiency**
  - < Utility Databases
  - < State Databases
  - < State Evaluations
  - < Wisconsin Evaluation
  
8. **Training Methods**
  - < Ohio Weatherization Evaluation
  - < Indiana – Report on specific trainees
  - < Pennsylvania – Specific trainee data sources
  - < Oregon – 19 month certification data
  - < Local Level – info
  - < Ohio – Data sets
  - < New York – Data sets
  
9. **Technical Monitoring**
  - < Ohio (Tracks visits)
  - < Wisconsin (Tracks measure problems)
  - < State Plans – All states have monitoring protocols included in their submissions

## **IX. Making the Evaluation “Easy”**

The following is “advice” provided by the network committee in how the data collection effort can best be coordinated and streamlined to reduce the burden on the network while producing the most useful data:

- < Very clear on our expectations
- < Focus on electronic data
- < Provide a process to deliver data
- < Get feedback input from the network and let the network help shape the instruments for collecting the data
- < Allow for state to “tag on” to the national effort, if the state intended to do an evaluation of their program anyway
- < Survey states to see how information is already being collected

- < Notify agencies/clients that participation in the Weatherization Program will require access to utility bills for two years post weatherization
- < Continue to communicate with the network and send regular updates informing the network on the progress and next steps
- < Have all the data go to the state and then roll up to the evaluator
- < Ask the states for xx number of houses instead of random sampling
- < Articulate how to deal with matching funds/multiple funding sources
- < Tie in market transformation component into the evaluation – allows the states to access other funding sources to help support a state evaluation
- < Access utility info through electronic format
- < Report on a monthly basis
- < Do database enhancements for existing systems
- < Get “real time access” through a DOE agreement with utilities
- < Provide a short form/long form approach to the evaluation
- < Explain treatment groups/control (comparison) groups

## **X. Pitfalls and Stumbling Blocks**

During this segment, the network committee was challenged to identify items that should be considered in conducting a successful evaluation based on their experience with the previous national effort or more recent evaluations conducted at various levels of the network:

- < Ensure there is a representative sample (e.g., ND had 7 homes in the last evaluation that did not adequately represent the ND housing stock or energy usage issues)
- < Data collection issues
- < Data access
- < Data existence
- < Data is on paper at the local level
- < DEFINE and get the word out
- < OMB requirements
- < Un-metered and dual fuels issues
- < TIME!! And clear tools for the network to use!
- < Identify what are the “right” things to save
- < Review current protocols and techniques
- < Formalize the process and identify “Now we need you to do X, then, here is what will happen at this point...”
- < Define measures so data can be collected uniformly
- < Language interpretation of coding
- < Fiscal reporting and understandings
- < How to pay for the evaluation
- < Data as part of the program requirements

## **XI. “Ask the Experts”**

The following are questions or concerns raised by the network committee that may/should be addressed by the “Evaluation Experts Committee” when they convene over the next few months:

- < Should there be an ENERGY STAR connection within the evaluation?

- < What methodology would you use – more and less scientific ways of approaching the various aspects?
- < How is the evaluation going to deal with un-metered fuels?
- < How is the evaluation going to deal with the extent and nature of household service?
- < Is there a way to track when occupants change?
- < What are the best methods for choosing comparison/sample groups?
- < What are the alternatives to comparison groups?
- < What are the names and qualifications of the “Experts” on this committee?
- < What affiliation do the “Experts” have with low-income housing stock?
- < How do we deal with persistence issues?
- < What can we do to increase longevity of the housing stock?
- < What is the direct “change filter”?
- < Is there a way to give all the factors a “relative weight” in relationship to energy savings?
- < How do you categorize and quantify the delivery process?
- < How do we keep this an obvious, transparent process to appease what “others” might look at?
- < What data are “others” looking for?
- < What is a rational peer review process for ORNL (or the prime evaluator) to undergo to ensure the evaluation is above reproach?
- < What is the management structure of the evaluation process?
- < Does the evaluator have the diverse interests represented – rural, urban, hot, cold?
- < What should the network expect with regard to responsiveness?
- < What are the cost consequences of this scope of work?

## **XII. Next Steps**

The following represent the next steps and approximate dates determined by the committee:

- < Notes from meeting sent out to committee for review – April 8
- < Reimbursement of committee members expenses – Contact Meg Eady if you have any questions regarding your reimbursement process – Immediately
- < List of individuals invited to participate on the “Evaluation Experts Committee” – May
- < Committee recommendations for experts committee due to Joel Eisenberg – May
- < Assemble veterans group (individuals intimately involved in the previous evaluation) – Mid-April
- < First draft of evaluation – End of June
- < Conference call(s) on specific issues – As needed
- < Group comments on draft evaluation – Late July
- < Inform the rest of the network of outcomes from this meeting and procedural steps – Ongoing