

U.S. Department of Energy

STATE PLAN/MASTER FILE WORKSHEET

Grant Number: EE00151, State: MO, Program Year: 2009

This worksheet should be completed as specified in Section III of the Weatherization Assistance Program Application Package.

III.1 Eligible Population

III.1.1 General Description

Definition of income used to determine eligibility:

The State has set income guidelines at 200% of federal poverty level to comply with the federal WAP regulations. The annual revision of poverty income guidelines are published in the Federal Register in February or March. The State will inform each Subgrantee as the revisions are made available.

Procedures to determine that units weatherized have eligibility documentation:

No dwelling unit may be weatherized without documentation that the dwelling unit is an eligible unit. All household income must be calculated per DOE requirements, and income and home ownership documented. According to federal regulations, homes previously weatherized between September 30, 1975, and September 30, 1994 are eligible to be re-weatherized. Any home completed after September 30, 1994, is not eligible to be re-weatherized with federal funds.

Definition of children: Below age 19

Recommend tribal organization(s) be treated as local applicant? No

If YES, Recommendation: If NO, statement that assistance to low-income tribe members and other low-income persons is equal:

Subgrantees will provide assistance to low-income Native Americans and other low-income persons on an equal basis.

III.1.2 Selection of Areas to Be Served

Services will be offered throughout the state of Missouri. Current service areas are based on the geographic boundaries of the State's Community Action Agencies (CAAs). The Missouri Department of Natural Resources' Energy Center (MDNR/EC) administers federal funds to 16 regional Community Action Agencies, one city government and one not-for profit organization. The Energy Center will evaluate each established subgrantee's performance against defined benchmarks after the first nine- (9) months of the grant period. If analysis indicates a subgrantee has fallen behind expected production and/or expenditure levels, the Energy Center will report to MDNR management. It will then be decided whether to initiate a competitive process to select additional subgrantees in areas of the state where it is determined necessary to ensure effective and timely use of the Transform Missouri WAP funds.

III.1.3 Priorities

Priority will be given to low-income elderly, persons with disabilities, families with children, households that are determined to be high-energy users and households that have a high-energy burden. This priority system will be followed in administration of the Transform Missouri Performance-based incentive funds, the Transform Missouri Housing Initiative funds and the funds distributed initially by the standard formula.

The Missouri Low-Income Weatherization Assistance Program Operations Manual details client selection criteria including program priorities.

III.2 Climatic Conditions

The combined total of both heating and cooling degree days ranges from 7938 in the northwest to 4943 in the southeast. Heating degree days range from a high of 6228 to a low of 4008. Cooling degree days range from a high of 1710 to a low of 935 for the 30-year National Oceanic and Atmospheric Administration (NOAA) average. The Weatherization Assistant (audit tool developed by Oak Ridge National Lab) provides heating and cooling degree days for use with the computerized audit programs.

U.S. Department of Energy

STATE PLAN/MASTER FILE WORKSHEET (continued)

Grant Number: EE00151, State: MO, Program Year: 2009

Weatherization Subgrantee	Weather Station
Central Missouri Community Action	Columbia
Community Services, Inc.	Kansas City
Delta Area Economic Opportunity Corp	Memphis, TN
Kansas City Department of Housing & Community Development	Kansas City
East Missouri Action Agency	St. Louis
Economic Security Corp.	Tulsa, OK
Green Hills Community Action Agency	Kansas City
Jefferson-Franklin Community Action Corporation	St. Louis
Missouri Ozarks Community Action	Springfield
Missouri Valley Community Action Agency	Columbia
North East Community Action Corporation	St. Louis
Northeast Missouri Community Action Agency	Columbia
Ozark Action, Inc.	Springfield
Ozarks Area Community Action Corporation	Springfield
Community Action Agency of St. Louis County	St. Louis
South Central Missouri Community Action Agency	Springfield
Urban League of Metropolitan St. Louis	St. Louis
West Central Missouri Community Action Agency	Columbia

III.3 Weatherization Work

III.3.1 Type of Work to Be Done

The state is committed to providing quality weatherization service on each client's home. It is very important that funds be used to provide services which will result in the greatest savings per dollar. The state believes it is essential to use a process that correctly identifies energy conservation measures (ECMs) that provide the greatest chance to reduce energy consumption, maximize savings, and increase client comfort. It is also important that the selection of ECMs does not compromise the health and safety of the client. The program operations manual outlines our procedures for work priorities. Types of work to be done:

- Air leakage reduction
- Attic insulation
- Wall insulation
- Foundation and floor insulation
- Duct insulation
- Heating system clean and tunes, repairs, and replacements
- Health and safety
- Lighting retrofits
- Hot water Heaters
- Refrigerator Replacement (pilot basis)
- Cooling measures (will discuss with technical workgroup)

Transform Missouri Housing Initiative - Twenty percent (20%) of the Transform Missouri WAP funding will be used by the MDNR for initiatives that result in increased benefit and greater positive impact for clients, neighborhoods and communities served. These funds will be focused on initiatives that provide energy-efficiency services to clients and significantly leverage other sources of funding for greater client benefit and job creation. These initiatives may focus on larger, multi-family housing units or neighborhood-based programs. These funds will be distributed on a competitive bases through a request for proposals.

Proposals must include projects that demonstrate increased coordination among funding sources to "pool" housing funds from multiple sources. For example, WAP funds may not be used to replace faulty roofs. Therefore, some homes cannot be weatherized. Increased coordination among a variety of different governmental agencies or civic groups may help to identify funds that can be used in conjunction with WAP funds to provide greater client benefit. Coordination also may allow projects with higher visibility and impact such as neighborhood sweeps. Many homes in a targeted neighborhood could be improved in one sweep by using funds from various funding sources to meet multiple needs at each home as workers moved through the neighborhood. In addition, due to limited funding in the past, Missouri's subgrantees have not typically pursued large multi-family projects. Multi-family proposals, especially if done through a coordinated effort among funding sources, may result in significant, concentrated, energy-efficiency improvements.

U.S. Department of Energy

STATE PLAN/MASTER FILE WORKSHEET (continued)

Grant Number: EE00151, State: MO, Program Year: 2009

III.3.2 Energy Audit Procedures

The energy audit procedures currently used in the Missouri WAP are of a comprehensive, holistic nature consisting of common sense, advanced diagnostic and assessment techniques, interior and exterior visual inspections, client interviews, and data collection. Additionally, the audit procedures employ the use of a computerized audit program as a tool to aid in selecting the most cost-effective measures.

The state has adopted the National Energy Audit Tool (NEAT) and the Mobile Home Energy Audit (MHEA) developed by Oak Ridge National Laboratory (ORNL). The state began phasing in the NEAT audit on July 1, 1993. NEAT was used on a statewide basis beginning July 1, 1994 and the state began implementation of MHEA on July 1, 2008. Subgrantees need to update their NEAT and MHEA audits with the most recent version at the start of each program year. Subgrantees will also need to update their fuel costs and other applicable costs in the audits. The NEAT audit may be used primarily on single-family, site-built units and can accommodate some multi-family dwelling structures (1-4 units). A subgrantee that undertakes weatherization of multi-family structures which cannot be addressed adequately with the NEAT audit will be required to have a U.S. DOE and MDNR/EC approved audit process specifying appropriate and cost-effective measures. DOE has not released the multi-family audit to the states. Further changes to MHEA will be implemented periodically according to a planned maintenance/update schedule similar to that followed by NEAT on the past few years. Audit material was submitted during PY2008 for validation.

<u>Unit Types</u>	<u>Audit Procedures and Dates Most Recently Approved by DOE</u>
Single-family	The NEAT audit was approved and used statewide since July 1, 1994. The NEAT audit was re-approved December 10, 2003. Audit material was submitting during PY2008 for validation.
Multi-family	If applicable, will be weatherized using the NEAT audit. If the subgrantees are not able to use the NEAT, they will be required to have a USDOE and MDNR/EC approved audit process specifying appropriate and cost-effective measures.
Mobile Home	A site specific energy audit will be performed on each mobile home using the MHEA. Audit material was submitted during PY2008 for validation.

III.3.3 Final Inspection

No dwelling unit may be reported to DOE as completed until all weatherization measures have been installed according to the work plan, or as documented in a change order request, and the subgrantee, or its authorized representative, has conducted a final inspection and certified that the work has been completed in a professional manner in accord with WAP work standards, and in accordance with the priority determined in 10CFR 440.

III.3.4 Assessment of Effectiveness

The "MDNR General Terms and Conditions for Federal Subgrants", subgrant Scope of Services, Subgrant Assistance Agreement and the Missouri Weatherization Program Operational Manual detail criteria deemed necessary for a Subgrantee to be considered in contract compliance with the State. Performance evaluations will be conducted throughout the grant period.

Benchmarks for Successful Performance:

- Month 4 of subgrant period: Minimum of 65% of expected production and expenditure.
- Month 6 of subgrant period: Minimum of 70% of expected production and expenditure.
- Month 9 of subgrant period: Minimum of 75% of expected production and expenditure.
- Month 12 of subgrant period: Minimum of 85% of expected production and expenditure.
- Month 15 of subgrant period: Minimum of 90% of expected production and expenditure.

U.S. Department of Energy

STATE PLAN/MASTER FILE WORKSHEET (continued)

Grant Number: EE00151, State: MO, Program Year: 2009

If a subgrantee falls behind expected production and/or expenditure in any period, the Energy Center will alert the subgrantee by letter of MDNR/EC's concern about production or expenditure levels and of the need to accelerate production. If an agency continues to fall behind at the next three-month period, the Energy Center will send a letter requesting a corrective action plan. The corrective action plan should explain, at a minimum, why expenditures and production goals have fallen short and contain a detailed explanation of what corrective action has or will be taken. Energy Center staff will evaluate the plan for adequacy, taking into account any extenuating circumstances and agency actions to correct the deficiencies. If production remains insufficient, MDNR may recapture and redistribute funds to other high performing subgrantees.

The Energy Center will evaluate each established subgrantee's performance against defined benchmarks after the first nine- (9) months of the grant period. If analysis indicates a subgrantee has fallen behind expected production and/or expenditure levels, the Energy Center will report to MDNR management. It will then be decided whether to initiate a competitive process to select additional subgrantees in areas of the state where it is determined necessary to ensure effective and timely use of the Transform Missouri WAP funds.

The Energy Center will offer assistance, as resources allow, to help subgrantees increase production to successful performance levels. This assistance may include special technical or administrative training for subgrantee staff of identification of additional contractors.

The Missouri Low-Income Weatherization Assistance Program Operations Manual details terms for probation and procedures to terminate a weatherization subgrantee.

A monitoring tool has been developed and used to evaluate technical error rates after monitoring visits and to evaluate compliance.

Transform Missouri Performance Based Incentive - Twenty percent (20%) of the Transform Missouri WAP funding will be used by the MDNR as an incentive for superior subgrantee performance. Performance-based benchmarks for successful subgrantee performance are as follows:

The Energy Center will evaluate each subgrantee's performance against defined benchmarks after the first fifteen- (15) months of the grant period. If subgrantees meet the following criteria, incentive funds remaining (after funding of new subgrantees, if needed) would be distributed to high performing agencies according to population/poverty criteria and waiting lists:

1. The subgrantee is expending a minimum of 95% of the funds projected to be spent at month 15 of the subgrant period.
2. The subgrantee has weatherized a minimum of five homes above the production expected at fifteen months into the three-year subgrant period.
3. The subgrantee has had no major findings in the previous two Energy Center fiscal/procedural and technical monitoring visits or in the subgrantee's A-133 audit.
4. Monthly, quarterly, and annual reports are submitted on time.

Program Evaluation

Measurement and evaluation of program effectiveness is vital and may be achieved through varied techniques and information sources. Among the analysis approaches the department will use is one focused on data gathering and analysis to assess equity of program delivery and to identify underserved geographic areas or populations. This analysis will help the department identify ways in which to focus resources for greater impact and client benefit. "By using a GIS-based tool to identify homes and weatherization actions taken in homes, the Energy Center will also be able to support subgrantees' planning efforts and identify likely additional needs."

III.4 Health and Safety

U.S. Department of Energy

STATE PLAN/MASTER FILE WORKSHEET (continued)

Grant Number: EE00151, State: MO, Program Year: 2009

Health and Safety Plan - Health and safety issues have become an increasingly expensive part of the Weatherization Assistance Program (WAP) as knowledge about the hazards within dwellings has increased over the past decade. When a health or safety hazard is detected, it is the policy of the MDNR/EC to address it. This policy is tempered by recognition that the primary goal of the WAP is energy conservation and funds should focus on conservation goals. MDNR/EC intends to balance these competing issues by routinely reviewing the most important hazards as guidance is provided by DOE or the need arises, and specifying measures for their abatement.

- A. Grantee Health and Safety** - Funds provided under 440.18 (c) (15) are to remedy health and safety hazards, which are necessary before, or because of, the installation of weatherization materials. These funds are to be expended by subgrantees in direct weatherization activities. Costs related to grantee health and safety should be charged to the state administrative or training and technical assistance cost category, as applicable. Expenditure of weatherization funds for materials, protective clothing, respirators, medical exams, proper tools and equipment and other items or activities related to the health and safety of clients are allowable health and safety costs under the Missouri WAP.

Training for staff as well as appropriate tools are referenced in the Missouri WAP Operational Manual, Section 3.1.A.1(b) and (h). Training will be provided in the area of health and safety that allows weatherization personnel to identify existing and potential threats to the client's or crew's health and/or safety.

- B. Crew and/or Contractor Health and Safety** - A subgrantee must comply with Occupational Safety and Health Administration (OSHA) requirements in all weatherization activities that involve staff personnel. Costs for subgrantees to comply with OSHA requirements may be charged under 440.18 as health and safety, tools and equipment, incidental repairs, etc. The cost category selected should be charged consistently throughout the state (from agency to agency) for the same activity.

When contractors are employed by subgrantees, those contractors also are required to comply with OSHA. The contractor costs to comply with OSHA, as applicable, are part of the bid price. Work that threatens anyone's health or safety may not be undertaken. Related costs for subgrantees to comply with OSHA requirements may be charged as tools and equipment. Subgrantees are responsible for purchasing all OSHA required tools and equipment and are required to immediately replace any defective tool or equipment.

Because of the wide range of activities involved in weatherizing a house, ensuring crew health and safety requires a broad knowledge of the appropriate OSHA requirements. Some of these requirements include, but are not limited to: respirator protection, techniques for safely lifting heavy objects, electrical equipment safety, ladder safety, and general worker protection. OSHA standards should be consulted for further details. Other useful information includes Material Safety Data Sheets that identify potential health risks and describe the proper use, handling, and storage of a wide variety of materials, including some common weatherization materials. They also suggest personal protective equipment and address first aid measures.

- C. Client Health and Safety** - Subgrantees are required to take all reasonable precautions against performing work on homes that will subject workers or clients to health and safety risks. Before beginning work on the residence, the agency must take into consideration the health concerns of each occupant, the condition of the dwelling, and the possible effect of work to be performed on any particular health or medical condition of the occupants. When a person's health is fragile and/or the work activities would constitute a health or safety hazard, the occupants at risk will be required to leave the home during these work activities.

Weatherization services can be provided in a manner that minimizes the risk to workers and clients. Although the Weatherization Assistance Program does not provide all the solutions, awareness of potential hazards is essential to providing quality services. A list of common hazards is discussed in Section D. Other energy-related hazards should be considered on a case-by-case basis.

During the energy audit, each subgrantee must be aware of conditions regarding health and safety. Visual and diagnostic inspections on every dwelling will provide a basis for identifying these concerns. Required procedures in handling health-and-safety issues include: (1) pre- and post-blower door tests and (2) a mechanical systems audit.

- D. Potential Hazard Considerations** - MDNR/EC recognizes the following list of hazards.
1. **Biologicals:** Removal of mold, odors, viruses, bacteria and unsanitary conditions is not a WAP responsibility. Local agencies should ensure that regular weatherization work is performed in a manner that doesn't contribute to mold problems and when the work is performed properly, can alleviate many mold conditions. If a subgrantee determines that a dwelling has an excessive moisture problem, mitigation may be possible if the cause can be eliminated with relatively minor expense. An example would be a broken downspout directing water runoff into a crawl space. Work that threatens

U.S. Department of Energy

STATE PLAN/MASTER FILE WORKSHEET (continued)

Grant Number: EE00151, State: MO, Program Year: 2009

the health or safety of WAP crews should not be undertaken. If a mold condition is discovered during the initial inspection of the home by the energy auditor that cannot be adequately addressed by the weatherization crew, then the unit should be referred to the appropriate public or non-profit agency for remedial action.

All homes should be checked for previous or existing moisture problems. Repair of moisture problems that might: 1) result in health problems for the client, 2) damage the structure over the short- or long-term, or 3) diminish the effectiveness of the weatherization measures, must be done before the weatherization job is completed. The moisture assessment section of the Auditor Field Form must be filled out along with special attention to the following:

- a) Evidence of condensation on windows and walls indicated by stains or mold.
- b) Standing water, open sumps, open wells, dirt floors, water stains, etc. in basements. Also, check to see if firewood is stored in the basement and whether laundry is hung to dry during the winter months.
- c) Leaking supply or waste pipes.
- d) Attic roof sheathing shows signs of mold or mildew.
- e) Identification of existing or potential moisture problems shall be documented in the client file.
- f) If existing moisture problems are found, no air sealing should be done unless the source of the moisture can be substantially reduced or effective mechanical ventilation can be added to cost-effectively remove the moisture. In some cases, air sealing must be done in order to reduce the source of the moisture (i.e. sealing off crawlspaces from the house, or sealing attic leakage to eliminate condensation on the roof deck).
- g) Because air tightening may cause an increase in relative humidity, client education should include information about moisture problems and possible solutions.
- h) In the course of weatherization, any low-cost measures that help reduce the humidity levels in the house should be installed. Examples of these activities are venting dryers, venting existing bath or kitchen exhaust fans or installing moisture barriers on dirt floors.
- i) A dwelling that has a CFM50 greater than the Building Airflow Standard (BAS) is no guarantee that moisture will not be a problem in that home.

2. Combustion Appliances and Combustion Gases: MDNR/EC will require each subgrantee to perform the following as part of the initial energy audit of each dwelling during the current Program Year:

- a) Test vented and unvented combustion appliances for carbon monoxide (CO) levels.
- b) Inspect furnace and water heater installations for sufficient combustion air (Refer to NFPA 54, National Fuel Gas Code). If the initial energy audit reveals a need for introducing more combustion air, it should be addressed as part of the weatherization process.
- c) Inspect and test heating equipment for a sound heat exchanger. Furnaces and other space-heating appliances that have a cracked heat exchanger are health and safety hazards that must be addressed and mitigated. Otherwise, the house must be rejected. Such appliances are also usually degraded to the point that their efficiency is greatly reduced.
Replacements will be limited to owner-occupied units. Rental units that have an unsafe heating system will not be weatherized until the landlord has installed an approved, safely operating heating system. Replacements will be limited to natural gas, propane and oil-fired systems.
- d) Inspect and test heating equipment and the water heater for proper flue/vent draft. Venting must be installed in accordance with national, state, and local codes.
- e) Inspect the water heater for health and safety hazards. Water heaters that cannot be economically repaired may be replaced as a health and safety measure. Replacements will be limited to owner-occupied units. Rental units that have an unsafe water heater will not be weatherized until the landlord has installed an approved, safely operating water heater. Replacement is limited to natural gas, propane and oil-fired systems. A site-specific domestic water heater replacement from fuel to electric may be authorized by DNR/EC on a case-by-case basis.
- f) Test fuel lines for leaks.
- g) Perform a post-blower door test to determine if the dwelling is within the ventilation guidelines.
MDNR/EC expects a subgrantee to be conscious of the changes in the dwellings caused by air tightening, such as greater possibility for back drafting, and less removal of indoor pollutants by air movement. Air leakage work with the potential to over-tighten the dwelling should be implemented with caution so the home is not over-tightened.
- h) Space Heater Policy: Separate guidance is provided for vented space heaters and unvented space heaters. A) Vented Space Heaters: Vented gas-and liquid-fueled space heaters should be treated the same as furnaces in terms of repair and replacement, as well as combustion appliance safety testing. This policy applies to vented natural gas-fired space heaters, vented propane-fired space heaters, and oil-fired space heaters (which are always vented). B) Unvented Space Heaters: Separate guidance applies to electric space heaters and unvented gas-and liquid-fueled space heaters. See Technical Standards Attachment 3-1, DOE Space Heater Policy.
- i) Reference the Missouri WAP Operational Manual for wood stoves: 3.II.C.1.a) The wood stove should be fired after the blower door testing is complete. With the stove operating, check around the solid-fuel appliances for carbon

U.S. Department of Energy

STATE PLAN/MASTER FILE WORKSHEET (continued)

Grant Number: EE00151, State: MO, Program Year: 2009

- monoxide (CO) emissions. If there are any indications of CO leaking from the stove into the ambient air, repairs should be made to correct the problem. Weatherization should not proceed until appropriate repairs are made allowing safe operation of the stove or fireplace. b) All venting systems and installations shall comply with the latest edition of NFPA 211, Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances. c) The client shall be notified of any unsafe conditions. Solid fuel heating equipment can be repaired, reference Section 3.VIII.K.7.a)(2)(a) of the Missouri WAP Operational Manual.
3. Fire Hazards: Combustion appliances and their associated venting systems must be installed in accordance with national, state, and local codes. In addition, the home may be deferred for other remedies if an identified fire hazard cannot be corrected with DOE funds. Reference in Missouri WAP Operational Manual 3.B.1.(c) Smoke detectors should be in every home and should be installed if not present in a home receiving weatherization services. A smoke alarm should be installed near combustion zone(s) and one near bedrooms. Refer to the Missouri Weatherization Field Guide for additional detail on installation and consult manufacturers recommendations. Reference in Missouri WAP Operational Manual 3.B.12.b) Auditors and crewmembers should inform property owners of safety problems, code problems and other health and safety issues. For issues that are life threatening or otherwise serious, the subgrantee supervisor should contact the jurisdiction having responsibility for the observed problem. Reference in Missouri WAP Operational Manual 3.B.10.a) and b) for Electrical Safety. a) Knob-and-Tube Wiring: (1) If knob-and-tube wiring is active in an attic, any insulation must be kept at least three inches from the wiring. Blown insulation must be appropriately dammed to keep the insulation from advancing closer than three inches from the knob-and-tube wiring. (2) If active knob-and-tube wiring is found in a dwelling attic, walls, or basement, the walls of the dwelling must not be insulated. (3) If knob-and-tube wiring has been deactivated and the dwelling has been rewired with BX, Romex, or other approved electrical cable, the attic and walls may be insulated without special precaution. b) Ground-Fault Interrupt Circuits: (1) Ground-fault circuit interrupter (GFCI) devices should be tested to ensure that they are working properly in dwelling bathrooms and kitchens. (2) If a GFCI is not installed in a dwelling bathroom, a subgrantee may have one installed, if appropriate. Reference to insulation shielding and blocking can be found in the WAP Operational Manual V.A.6.
 4. Existing Occupant Health Problems: A subgrantee should ask clients if they have any health conditions that will be aggravated by the work required to install energy conservation retrofits. Precautions must be taken if the client will be unduly affected by dust, the smell from caulking chemicals or other attributes of the retrofit work so as to contain that part of the process and minimize any adverse effects.
 5. Indoor Air Quality:
 - a. Asbestos: Asbestos abatement is normally beyond the scope of WAP work in Missouri. If a subgrantee determines that friable asbestos is present in a dwelling, a blower door test should not be performed. Asbestos issues will be referred to the appropriate State agency.
 - b. Radon: MDNR/EC believes the potential in Missouri for exacerbating radon problems with weatherization work is rather low and does not plan to expend funds for radon testing or mitigation.
 - c. Formaldehyde and Volatile Organic Compounds: Subgrantees will be advised that some new carpets, wafer board and plywood can emit formaldehyde. This is not specifically a weatherization responsibility. However, if a client has recently installed a large amount of these materials, the subgrantee will be advised that a curing time is desirable before the dwelling is air-tightened, and care should be taken to avoid excessive air tightening in such dwellings. Volatile Organic Compounds (VOC's) are the solvents in some caulking compounds, paint and cleaning agents. Subgrantees are advised to be cautious about using such materials inside dwellings.
 6. Lead - Lead Safe Weatherization (LSW) is a set of protocols to be used when disturbing surfaces that may have lead-based paint that will reduce and control the amount of lead dust and paint chips that are generated. The protocols involve setup and cleanup practices that contain the spread of the lead dust during Weatherization work and eliminate most traces of the lead dust and debris (generated from the weatherization activities) when the work is finished.
 - a. Lead Safe Weatherization - The following set of criteria may be used in determining if LSW would be performed by local weatherization agencies.
 1. The dwelling was constructed pre-1978.
 2. The dwelling has not been determined to be lead-based paint free.
 3. Either, the amount of disturbed lead-based painted surface exceeds two square feet per room of interior surface, twenty square feet of exterior surfaces, or 10% of a small component e.g., window; or the amount of lead-based paint dust that will be generated by the weatherization work exceeds the OSHA defined airborne levels for lead.
 4. The EPA published a new Final Rule in April of 2008: the "Lead: Renovation, Repair, and Painting Program" Final Rule (LRRPP Final Rule). Under certain, fairly common circumstances, the Final Rule requires weatherization providers to give a copy of the EPA booklet "**Renovate Right: Important Lead Hazard Information for Families, Child Care Providers and Schools**" prior to the start of work. The rule also has a record-keeping requirement.
 5. Refer to the "**Lead-Safe Weatherization: A Training and Reference Manual for Weatherization Managers**

U.S. Department of Energy

STATE PLAN/MASTER FILE WORKSHEET (continued)

Grant Number: EE00151, State: MO, Program Year: 2009

- and Crews"** for reference material about lead safe work practices. The notebook was distributed to each agency.
- b. Training - LSW training for Weatherization workers, both in-house and contractor, is critical to the protection of Weatherization clients and the workers themselves. Training will be conducted in LSW using either the DOE benchmark LSW Curriculum or an equivalent curriculum. Crewmembers and contractors need to have the training before they work on homes with lead paint where painted surfaces in those homes will be disturbed in the course of doing Weatherization measures.
 - c. Lead Based Paint Disposal - Always collect, bag, and seal all waste at the work site and in the work area. Do not carry the waste to another room or another area before bagging and sealing. Store all waste in a secure container or dumpster until disposal. Avoid collecting bags of debris in work vehicles or in shops. Also, avoid transporting waste in an open truck. If this is the only method of transportation, cover the bed tightly with a tarp.
 - d. Deferral Policy - It may be prudent to defer certain Weatherization work in homes that have either tested positive or are assumed to have lead-based painted surfaces. Even if the home does contain lead-based paint, regular weatherization work that does not disturb painted surfaces and does not stir up lead-based paint laden dust residues can be done. The following steps are recommended:
 - 1. First, the subgrantee should assess the following factors:
 - a) Is agency prepared to work with lead based paint? (training, equipment, and insurance)
 - b) What is the condition of the painted surfaces in the house?
 - c) How will specific energy efficiency measures disturb painted surfaces? (will the disturbance generate dust in excess of OSHA minimums)
 - d) Will the cost of doing LSW be a large portion of the total cost, exceeding the amount allowed by state's health and safety plan?
 - 2. Second, based on above factors, weatherization agencies should determine whether to:
 - a) Proceed with all weatherization work, following LSW work practices.
 - b) Do some of the weatherization tasks and defer others.
 - c) Defer all of the weatherization work. Deferral would mean postponing the work until the weatherization agency is prepared to work with lead-based paint, or until another agency has corrected the problem. In cases where extensive LSW would be necessary, agencies are encourage to arrange with other organizations, which are funded to do lead paint hazard control, to perform some of the more costly activities, such as entrance testing or clearance testing. In areas where there are no organizations performing such work, weatherization agencies may choose to develop their own capabilities for lead-based paint hazard control work, but they may not use DOE Weatherization funds for this purpose.
 - e. Liability Issues - Agencies must either refer or defer weatherization work that will disturb surfaces that may contain lead-based paint, until they have insurance that will provide coverage for LSW work in situations involving lead-based paint.
 - f. Compliance Verification - Monitoring staff will assess LSW during routine monitoring visits.
 - 1. Check inventory for critical materials and necessary crew protective gear.
 - 2. Assess working conditions, equipment and crew for possible lead contamination.
 - 3. Assess the level of lead safe weatherization training that crews and contractors have received.
 - 4. Determine if there is a need for additional training based upon materials assessment, protective gear available, and working conditions.
 - g. Non-Compliance Protocol - If an agency is found not following Lead Safe Weatherization practices, the MDNR/EC will increase monitoring frequency. MDNR/EC will conduct additional audits on homes during the weatherization work. The agency will also be encouraged to provide additional training to their crew/contractors.
 - h. Client Health & Safety - Lead Safe Weatherization requires that residents and pets not have access to the work area while work is underway. Agency staff is required to make every effort to contain the work area and eliminate tracking any dust or materials throughout the house, or exposing residents and pets to any contaminants. If containment cannot be achieved and there is a risk of traffic through the work area (e.g., work will take several days involving the kitchen, bathroom, or bedrooms) agencies are advised to defer the work until other resources can be secured to offset relocation expense for the residents and pets.
 - i. Weatherization Worker Protection - DOE requires subgrantees to follow the specified EPA requirements. By adopting basic safety precautions and LSW, Weatherization Programs can protect workers and the occupants of the homes they weatherize from lead exposure. DOE requires subgrantees to follow the specified EPA and Occupational Safety and Health Administration (OSHA) standards for worker safety as well as any state or local requirements. By ensuring all weatherization workers are knowledgeable of LSW Minimum Standards (as revised in the 2008 benchmark procedures and curriculum), subgrantees increase the assurance LSW is being followed properly and risks to the workers and/or occupants and minimized.

U.S. Department of Energy

STATE PLAN/MASTER FILE WORKSHEET (continued)

Grant Number: EE00151, State: MO, Program Year: 2009

7. Building Structure: Building rehabilitation is beyond the scope of the Weatherization Assistance Program; however, program workers frequently encounter homes in poor structural condition. Dwellings whose structural integrity is in question should be referred to the Department of Housing and Urban Development. Weatherization services may need to be delayed until the dwelling can be made safe for crews and occupants. Incidental repairs necessary for the effective performance or preservation of weatherization materials are allowed. Examples of these limited repairs include sealing minor roof leaks to preserve new attic insulation and repairing water-damaged flooring as part of replacing a water heater.
8. Electrical Issues:
A Subgrantee is expected to comply with all relevant local building codes and must conform to the electrical codes of political subdivisions within their service areas.
If serious electrical overloads are noted, the house should not be weatherized until the problem can be remedied. Subgrantee auditors and crews must be alert for electrical wiring problems, and must notify the owner and document findings in the client file. Wiring repairs are allowed under health and safety. If the dwelling is a rental, the landlord must make the necessary wiring repairs before weatherization services.
Older electric wiring, primarily knob-and-tube wiring, located in a wall cavity or exposed on an attic floor was intended by code to have free air movement that would cool the wire when it is carrying an electric current. Insulation installed around electrical wiring must be in compliance with local Codes. (Article 324 of the National Electrical Code addresses homes with Knob-And-Tube wiring).
9. Refrigerant Issues: The replacement of air conditioners; approved since 1992, and the recently approved refrigerator replacements (Weatherization Program Notice 00-05) requires agencies to reclaim refrigerant per Clean Air Act 1990, section 608, as amended by 40 CFR 82, 5/14/93. The appliance vendor, demanufacturing center, or other entity recovering the refrigerant must possess EPA-approved section 608 type I or universal certification. Subgrantees should ensure they have appropriate protocols in place that comply with all standards relating to the disposal of the existing appliances.
10. Other Code Compliance Issues: It is the subgrantees responsibility to ensure that weatherization-related work conform with applicable codes in jurisdictions where the work is being performed.

E. Deferral Policy - Required Subgrantee Walk-Away Policy

There are some situations in which a subgrantee should not or may choose not to weatherize an otherwise eligible unit. In order to deal with these situations each subgrantee must develop a policy which, when implemented, allows weatherization staff to "walk away" from conditions or circumstances that may be hazardous to their health and safety or that of the client's.

The following is a model walk-away policy intended to list the more common conditions and situations a subgrantee may encounter while delivering weatherization services. This list is not intended to be all inclusive of those instances in which a subgrantee may choose not to weatherize a unit. In some instances, corrective measures by the client/owner may allow program services to proceed. At a minimum, the subgrantee walk-away policy should contain the following:

Documentation

In the event a subgrantee cannot or chooses not to weatherize a dwelling unit it must notify the client and owner/authorized agent in writing and include the following items:

The nature and extent of the problem(s) and how the problem(s) relate to the determination to not weatherize the unit;

Any corrective action required before weatherization services can be initiated;

A time limit for correcting problems so that weatherization services may be rescheduled;

The right of appeal; and

All correspondence justifying the decision to "walk-away" must be kept in the client file.

Withholding of Weatherization Services

A subgrantee may withhold weatherization services under the following conditions:

A dwelling unit is vacant.

A dwelling unit is for sale or in foreclosure.

A dwelling unit is scheduled for demolition.

A dwelling unit is found to have serious structural problems that would make weatherization impossible or impractical.

A dwelling unit is deemed by the auditor to pose a threat to the health or safety of the client, crew or subcontractor.

A mobile home is improperly installed (for example, inadequate supports).

A dwelling unit is uninhabitable (for example, such as a burned out apartment).

When there are minor children in the dwelling but no adult client or adult agent of the client, subgrantee personnel must not enter the dwelling.

An adult client or adult agent of the client need not be present if the estimator or crew foreman feels satisfied with a signed note from an adult client or adult agent of the client stating their permission to enter the dwelling occupied by the minor children.

The client is uncooperative with the weatherization subgrantee, either in demanding that certain work be done and refusing

U.S. Department of Energy

STATE PLAN/MASTER FILE WORKSHEET (continued)

Grant Number: EE00151, State: MO, Program Year: 2009

higher priority work which is needed, or by being abusive to the work crew or subcontractor, or by being unreasonable in allowing access to the unit, every attempt should be made to explain the program and the benefits of the work. If this fails, work should be suspended and the State Weatherization Office consulted.

Obvious discrepancies are found between the information supplied by the client on the application and observed conditions at the time of weatherization. The subgrantee must resolve these discrepancies before weatherization work can continue.

If, at any time prior to the beginning of work (materials installed in a unit), the subgrantee determines that the client is no longer eligible or subgrantee personal believe that circumstances may have changed, the unit shall not be weatherized until updated information can be obtained from the client.

There are rats, bats, roaches, reptiles, insects, animals or other vermin that are inappropriately or not properly contained on the premises.

There are health or safety hazards that must be corrected before weatherization services may begin including, but not limited to:

- (1) The presence of animal feces and/or other excrement,
- (2) Disconnected waste water pipes,
- (3) Hazardous electrical wiring, or
- (4) Unvented combustion appliances.

There are illegal drugs or illegal activities occurring on the premises.

The client or owner is physically or verbally abusive to subgrantee personnel.

The dwelling unit or parts thereof are being remodeled and weatherization work is not coordinated with a housing rehabilitation program.

The eligible household moves from the dwelling unit where weatherization activities and services are in progress.

In such a case, the subgrantee must determine whether to complete the work and the circumstances must be documented in the client file.

There are unusual situations, which in the judgment of the subgrantee staff, must be corrected before proceeding with weatherization.

- (5) No utility hookups (It is apparent that utilities have been shut off).
- (6) Lack of cooperation from client.
- (7) Dwelling units undergoing remodeling, or which have untreated areas that directly affect the weatherization process, shall not be weatherized.

III.5 Rental Procedures

Rental units are weatherized under the Missouri WAP based on eligibility criteria established in the WAP State Plan. Eligible clients residing in rental units must have a signed landlord agreement before work can commence. The agreement outlines the following federal regulation criteria.

- Landlord agrees not to raise the rent on weatherized units for a period of two years after weatherization is complete without just cause.
- The tenant will not be evicted during this two year period without just cause.
- The landlord agrees that tenant(s) with utility inclusive rent will receive reduction in rent when utilities are reduced as a result of weatherization.
- Landlord shall not sell the premises for a period of two years unless the buyer agrees to assume the above obligation.

When work is performed on any type of rental unit, the State recognizes the potential for owners to receive undue enhancement benefits. Therefore, the State requires a Subgrantee to negotiate with an owner/landlord for match contribution. Landlords must provide a five percent cash contribution of estimated labor and material project costs before weatherization work can begin on a home. The requirement that the owner/landlord provide a five percent cash contribution to the project will be waived if the owner/landlord's annual taxable income is at or below 200 percent of the federal poverty level. In order to receive this waiver, the owner/landlord shall sign and submit to the subgrantee an affidavit, under penalty of perjury, certifying that his or her taxable income is at or below 200 percent of the federal poverty level.

The Subgrantee should document both positive and negative results of negotiations with landlords. Landlord contributions are considered as leveraged funds and should be reported to the State. Leveraged monies remain with the Subgrantee and are used to supplement State allocations.

The definition that will apply in Missouri for undue enhancement is any work performed on a dwelling that cannot be expected to directly result in energy savings or the preservation of agency-installed work related to energy savings. Rental units are not eligible to receive furnace replacements as this has been determined to be undue enhancement.

U.S. Department of Energy

STATE PLAN/MASTER FILE WORKSHEET (continued)

Grant Number: EE00151, State: MO, Program Year: 2009

In practical terms, this undue enhancement statement directs local subgrantees to perform only the enhancements that are based on the use of NEAT or Mobile Home Weatherization Measures - Priority System, as well as limiting repairs to the definition of incidental repairs. It is our position that as long as the local agency adheres to this guideline, no undue enhancement has been provided to an eligible dwelling.

The Subgrantee is cautioned in attempting large multi-family housing. Subgrantees shall seek approval by the Department of Energy through the MDNR Weatherization Program Manager.

Large multi-family buildings may be exempt from the requirement that income-eligible persons must occupy at least 66 percent of the units. As few as 50% of the units may be certified as eligible to qualify the building for weatherization services. This exception would apply only to those large multi-family buildings where investment of DOE funds would result in significant energy-efficiency improvements because of upgrades to equipment, energy systems, common space, or building shell. Local agencies will be better able to select the most cost-effective investments and enhance partnership efforts to leveraged funds and/or landlord contributions. However, for multi-family structures having five or more units, the State has determined the owner/landlord will be required to contribute a minimum of 25 percent of the weatherization project cost.

The key factor is to ensure the investment of DOE funds coupled with leveraged resources will result in significant energy savings. Subgrantees shall work closely with the state when undertaking large multi-family projects.

III.6 Program Management

III.6.1 Overview

The MDNR/EC administers the federal Low-Income Weatherization Assistance Program (LIWAP) statewide in Missouri. The Energy Center is organized into programs to provide measurable public benefit services to the citizens of the State of Missouri. The Energy Center consists of several sections that contribute greatly to the LIWAP program. The Energy Efficiency Programs (EEP) section contains the program management and technical staff. The program manager and other staff in the EEP section are responsible for the day-to-day operation of the LIWAP program including procedural and financial monitoring and technical monitoring of weatherized homes. The staff review guidance and regulations regarding the LIWAP program. The technical staff are also responsible for performing housing inspections and providing technical assistance to the subgrantees. Kansas City and St. Louis staff provide assistance in performing housing inspections and provide technical assistance to the subgrantees in their geographical areas. The Policy and Analysis section intervenes in utility rate cases to leverage more funding for LIWAP. The financial unit provides financial assistance in completion of the application for funding, subgrant assistance agreements, invoice processing, data collection and reporting, assisting with procedural and financial monitoring. The MDNR Administrative Support provides fiscal support to the EC and the LIWAP program. This includes review of state and federal regulations, LIWAP regulations, etc. This MDNR fiscal support is not funded with LIWAP funds.

Energy costs consume a far greater percentage of income in low-income households. In 2008, weatherized homes nationally saved \$1.9 billion, as a group. At current prices, home energy savings average \$413 each year. This allows low-income households to have more affordable energy bills and makes available more money for food, medicine, transportation and other necessities.

The LIWAP reduces energy consumption and utility bills, keeps money in the local economy, has a positive impact on the household's promptness of utility payments and arrearages and reduces environmental pollution.

LIWAP Goals:

- Effective management of state and federal weatherization funds.
- Continuation of improved weatherization services. Increased energy-efficient housing, long-term reduction in utility bills and the comfort and safety of those served.
- Close working relationships with local weatherization agencies and others that are engaged in delivery of services to citizens of the State of Missouri.

III.6.2 Administrative Expenditure Limits

The State will authorize additional administrative funds up to 5% of an agency's budget for Subgrantees with less than \$350,000 of allocation of federal WAP funds. To request this higher amount, a Subgrantee must document a need for

U.S. Department of Energy

STATE PLAN/MASTER FILE WORKSHEET (continued)

Grant Number: EE00151, State: MO, Program Year: 2009

additional administrative funds for WAP-related issues and obtain prior approval from EC. These costs will be monitored by the MDNR/EC. The State will review each Subgrantee's budget and approve budgets which have justified WAP and agency administration costs.

III.6.3 Monitoring Approach

I. INTRODUCTION

The State of Missouri historically has administered the Weatherization Assistance Program (WAP) through a supervised network of nonprofit Subgrantee agencies and local governments. The State may procure new implementation subgrantees as described elsewhere in this document. As the granting agency for the statewide program, the MDNR/EC is responsible for monitoring the performance of each WAP Subgrantee. Monitoring enables MDNR/EC to determine if the residents of Missouri are being adequately served and if the WAP is being operated in compliance with the federal/state regulations and requirements. Information obtained by the monitoring effort is used to determine:

- Internal controls and processes used by subgrantees
- Types of training and technical assistance required
- Fiscal integrity of subgrantees
- Production rates
- Proactive measures that may be taken to improve program operations
- Compliance with federal/state regulations and requirements
- Quality of weatherization work performed on clients homes

II. PROBLEM RESOLUTION: A variety of problems may arise during the course of a program year which may require different methods of resolution. Most problems can be placed into one of four categories.

1. Reporting

Reporting problems can generally be resolved using written communication explaining the problem. Where the problem is significant, an on-site visit will be made to gather the correct data and assist the Subgrantee in developing better reporting procedures.

2. Housing Quality

A housing quality problem may be noticed during a field visit. Where significant problems are found in the workmanship on the home, the Subgrantee will be required to return to the home(s) and correct the problem. Where a problem is found to be widespread, the Subgrantee will be required to notify MDNR/EC of the resolution to the problem following procedures as defined in the Weatherization Program Operational Manual. This may include informal or formal staff training.

3. Safety

For safety issues, the Subgrantee will be required to correct all deficient work and to re-inspect all completed homes with similar concerns, providing routine updates to DNR/EC until all concerns are corrected. MDNR/EC will re-inspect to verify that corrections have been made either through an on-site inspection or by telephone contact with clients.

4. Fiscal Compliance

MDNR/EC will require subgrantees to take corrective action when a Subgrantee is not in compliance with the federal and state requirements. The action taken will depend upon the nature of the problem. If, for example, a problem involves a disallowed cost, the Subgrantee will be required to repay MDNR/EC. MDNR/EC will require the Subgrantee to provide documented evidence of corrective action(s) when MDNR/EC has determined that the Subgrantee is not in compliance. MDNR/EC will monitor subgrantee implementation of corrective actions during annual on-site monitoring visits.

III. IMPROVEMENTS BASED ON PAST YEARS' EXPERIENCES

The Weatherization Assistance Program will continue to be upgraded to keep current with new accepted technology and improved ways of conducting business such as pressure diagnostics testing, use of infrared camera in the field and BPI

U.S. Department of Energy

STATE PLAN/MASTER FILE WORKSHEET (continued)

Grant Number: EE00151, State: MO, Program Year: 2009

certification.

IV. QUALITY CONTROL MEASURES

A. Statewide Requirements

1. Inspections

Before reporting a completed home, MDNR/EC requires all homes pass a final inspection by subgrantees. No dwelling unit may be reported as a completed unit until all weatherization measures have been installed according to the work plan, or as documented in a change order request, and the subgrantee, or its authorized representative, has conducted a final inspection and certified that the work has been completed in a professional manner, in accord with WAP work standards, and in accordance with the priority determined in 10CFR 440. Expenses associated with a home that fails MDNR/EC inspection may be withheld from the Subgrantee's subsequent reimbursement until the home passes.

2. Work Measures

The work measures are determined by a comprehensive audit procedure for site built homes and mobile homes. The audit prescribes a prioritized package of measures to be installed in conjunction with site-specific decisions made by the auditor. More detail is provided in the technical standards of the MDNR/EC Weatherization Program Operational Manual.

B. Purchasing Controls

1. Materials Specifications 10 CFR 440 Appendix A (Revised)

Each Subgrantee is required to specify material standards in their bid documents. Materials are required to meet or exceed standards specified in the most current 10 CFR Part 440 Appendix A and the Missouri WAP material standards list. MDNR/EC requires all materials have a long term life expectancy, if applicable. Missouri Subgrantees require that vendors submit certification documentation for all major weatherization materials such as insulation and storm windows. Bid and contract documents are reviewed by MDNR/EC.

2. Materials Purchasing Standards

Standards for competitive bidding are detailed in the WX Program Operation Manual; Procurement Section. Essentially, a Subgrantee must accept the lowest responsible bid which meets bid specifications.

C. On-Site or Local Controls

1. Responsibility for Post-Work Inspections

MDNR/EC monitoring staff reviews the organizational structure of each Subgrantee to insure segregation of duties. In the case of small agencies which employ not more than three WAP staff, MDNR/EC will allow the same person who performs the initial inspection to perform the final inspection. However, at least 5% of all final inspections must be performed by a person other than the person who performed the initial inspection.

2. Accuracy of Work Orders and Inspections

The Subgrantee final inspectors are required to assure that proper work priorities were followed and that the work has been properly performed. MDNR/EC monitoring staff will review the process. A Subgrantee having problems will first be provided more technical assistance. Continued problems will result in further steps beginning with disqualification of Subgrantee inspectors and ending with the subgrantee loss of MDNR/EC funding. MDNR/EC will implement this provision to emphasize the importance of completing work in a cost-effective and quality manner.

V. MONITORING REPORTS

U.S. Department of Energy

STATE PLAN/MASTER FILE WORKSHEET (continued)

Grant Number: EE00151, State: MO, Program Year: 2009

MDNR/EC will report progress to USDOE using the following method:

A. Submitting an Annual/Project Summary Report

The annual/project summary report documents the following:

- Number and types of monitoring visits scheduled and completed.
- Significant findings.
- Findings status.
- Significant corrective actions.
- Current management issues.
- Assistance needs.

An annual summary report will be provided to USDOE giving an overview of the year end and the status of activities that were planned.

III.6.4 Training and Technical Assistance Approach

The goals of the Missouri Low-Income Weatherization Assistance Program are to provide effective management of federal, state and local funding; continuation of improved weatherization services, increased energy efficient housing, long-term reduction in utility bills and comfort and safety of those served.

Training and Technical Assistance is an essential strategy to meet the goals of the Missouri Low-Income Weatherization Assistance Program. The following details training activities.

A. Assessment of training needs for local weatherization agencies:

Monitoring oversight and agency reporting are indicators of local agency productivity and quality of weatherization retrofit. Training needs are identified through this oversight.

Personnel inventories and surveys are used to determine the type of training required and the best means of providing instruction. Inventory and analysis of agency personnel, equipment, advanced technologies and protocols are used to determine the status of each agency's efforts in implementing new technologies; identifying agencies that are available to assist others in implementing new or advanced technologies.

Training and Technical Assistance meetings with the weatherization director's Energy Housing Professional Alliance group and their Technical Work Group.

Subgrantees will be checked at least annually for compliance with certification requirements such as BPI and Lead Safe.

B. Productivity of agencies and development of T&TA activities and priorities:

Monitoring oversight and agency reporting are indicators of local agency productivity and quality of weatherization retrofit. Advanced energy audit procedures (NEAT) are used for single-family dwelling units and (MHEA) are used for mobile home dwelling units. Advanced energy audits approved by the U.S. DOE and the Missouri Energy Center are used for multi-family dwelling units. A minimum savings-to-investment ratio of 1.0 is used as a threshold for the application of weatherization measures.

Inventory and analysis of agency personnel, equipment, advanced technologies and protocols are used in a variety of ways including:

- Determining the status of each agency's efforts in implementing new technologies
- Identifying agencies that are available to assist others in implementing new or advanced technologies
- Development of priorities within annual training plans.

See Annual File, section 11.6 for additional information.

U.S. Department of Energy
STATE PLAN/MASTER FILE WORKSHEET (continued)
Grant Number: EE00151, State: MO, Program Year: 2009

III.6.5 Energy Crisis Plan