Systems SBRA Building Research Alliance

1776 Broadway, Suite 2205
New York, NY 10019
212 496 0900 Tel
212 496 5389 Fax
www.research-alliance.org

ENERGY STAR Manufactured Housing Program
East Kentucky Power Cooperative, Inc.

Background

The Systems Building Research Alliance (SBRA) is a national non-profit organization founded in 1995. SBRA was established by a consortium of electric utilities in the Southeast and the major companies of the factory building industry with the express goal of developing and implementing solutions for improving energy performance of new and existing factory built homes. Among SBRA's current responsibilities are providing national oversight for the ENERGY STAR factory built homes program in support of the U.S. Environmental Protection Agency (EPA). To foster innovative thinking and advances in building practice, SBRA is the nexus for bringing together representatives of the factory building industry with public agencies, non-profits and other organizations.

SBRA is uniquely positioned to provide professional services related to operation of the ENERGY STAR Manufactured Housing Program by integrating existing ENERGY STAR-related assets for the benefit of the project. These include the following:

- SBRA is responsible to U.S. EPA for quality control oversight of ENERGY STAR factory built homes. SBRA authored the ENERGY STAR compliance protocol for factory built homes and oversees a network of third-party quality inspectors known as ENERGY STAR Certifiers that work with the plants.
- SBRA has long-standing established relationships with the factory building stakeholders in EKPC's service territory.
- SBRA tracks every ENERGY STAR manufactured home produced in the U.S. through a proprietary web-based database known as the ENERGY STAR ***Information Manager***.
- For the past seven years, SBRA has been responsible for facilitating, overseeing and implementing programs that promote—generally with the aid of financial incentives—the construction and sale of ENERGY STAR factory built homes. SBRA has administered ENERGY STAR housing rebate programs in cooperation with utilities and state agencies in several areas across the nation, including California, Nevada, North Carolina and in the Tennessee Valley Authority's seven-state service area in the Southeast.

With this varied experience, SBRA has honed the approach to creating an environment conducive to changing building practices, specifically moving the industry toward making ENERGY STAR an integral part of new construction practice.

Objective

The ENERGY STAR Manufactured Housing Program is intended to grow the market for ENERGY STAR homes in East Kentucky Power Cooperative's (EKPC) service area by providing manufactured home producers with an incentive to promote and facilitate the completion of new ENERGY STAR certified manufactured homes.

Measure Description

The Program will pay incentives in the form of rebates for electrically heated manufactured homes that qualify for the ENERGY STAR label as defined by the U.S. EPA. ENERGY STAR compliance requires the use

of a combination of envelope and equipment measures that in combination result in performance that is significantly more energy efficient than comparable homes built to the federal HUD code[1].

An ENERGY STAR certified manufactured home is equipped with the following features:

- Thermal envelope improvements
  - increased envelope insulation
  - improved duct insulation
  - tight ducts construction
  - high efficiency windows (requirements for U-value, area and solar heat gain coefficient)
  - tight envelope construction
- High efficiency equipment/control strategies
  - high efficiency heat pumps in place of typically installed electric resistance furnaces and air conditioning equipment
  - high efficiency domestic water heater
  - programmable thermostat

Quality Assurance

Under a policy effective November 1, 2005, the U.S. EPA made plant certification, third-party plant Certifier oversight and field performance verification for ENERGY STAR manufactured homes the responsibility of SBRA as the national Quality Assurance Provider (QAP). To assure quality at every step in the ENERGY STAR process, SBRA has established a process that both leverages the quality control measures already in place for manufactured homes (the plant DAPIA and IPIA process discussed below) and has created a separate network of third-party agents called ENERGY STAR Certifiers that function in a similar capacity as Home Energy Rating System (HERS) raters and providers. This four-tiered quality control system—DAPIAs, IPIAs, Certifiers and SBRA—taken together assure that ENERGY STAR manufactured homes consistently perform to expectation and, if and when exceptions arise, they are addressed quickly and the method of their resolution is used to improve the overall QC process.

There are several overlapping and reinforcing procedures identified below that assure that the manufacturer that builds ENERGY STAR homes is meeting or exceeding the requirements of the program.

- **DAPIA approvals of the ENERGY STAR package:** Under the HUD standards that regulate manufactured homes, every design must be approved by a third-party agent called the Design Approval Primary Inspection Agency (DAPIA). Manufacturers develop ENERGY STAR compliant packages that are incorporated into the DAPIA package and are thus covered under the umbrella of HUD enforcement. Therefore, failure to build the home as specified would be a regulatory breach. Conformance of the design to the ENERGY STAR requirements is verified by the ENERGY STAR Certifiers.

- **IPIA approval during construction:** The HUD standards also require an in-plant inspection of all homes by another third party called an IPIA (In-Plant Plan Inspection Agency). The IPIA is responsible for verifying that the manufacturer is building the home in accordance with the DAPIA-approved plans. For ENERGY STAR homes, the IPIA checks during the production process that the home is built with the required insulation, equipment, windows, controls and other features found on the approved plans.

- **ENERGY STAR Certifiers:** Separate and apart from the above process that leverages the existing inspection agencies, every manufacturer must have a third-party ENERGY STAR Certifier. The

[1] 24 CFR Part 3280, *Manufactured Home Construction and Safety Standards,* U.S. Department of Housing and Urban Development.

Certifiers are responsible to SBRA as the ENERGY STAR QAP. SBRA requires that these agents have skills equivalent to HERS raters and must be familiar with factory building practices. The actions of the manufactured home Plant Certifiers are governed by procedures stipulated by SBRA. The Certifiers provide a unique function and are on the front lines of assuring conformance to ENERGY STAR requirements. The role of the Certifier includes the following:

- Oversee the plant ENERGY STAR qualification process.
- Train plant production staff in ENERGY STAR techniques.
- Review and if acceptable, approve plant processes and the plant's ENERGY STAR-related documentation, including ENERGY STAR qualified home designs, ENERGY STAR Site Installation Checklist, Quality Control Manual and the Manufacturer's Site Installation Manual.
- After initial plant certification, conduct ongoing quality control inspection and testing of a representative sample of completed homes.
- Participate in and contribute to periodic meetings of Certifiers conducted by SBRA regarding program quality control and oversight.

- **SBRA Oversight:** As the national QAP, SBRA oversees the work of the Certifiers and routinely reviews quality control methods and approaches with the Certifiers.

Market Characteristics at a Glance

- Total new manufactured home shipments for Kentucky[2] 2,214
- Estimated number of homes placed in EKPC's service area 1,000
- Estimated percent of homes in Kentucky with electric resistance heat 80%
- Total potential market (number of new homes annually) 800
- Target number of program rebate homes (annually) **400**

Rebate Amount

An incentive of $1,750 would be paid to the home manufacturer for each new ENERGY STAR certified home that is retail sold to a customer of EKPC and equipped with a heat pump. Providing the incentive directly to the manufacturer (as opposed to the customer or retailer) is, in effect, a wholesale purchase since it covers the factory-installed measure costs before markups. This leverages the program investment and, compared with a customer incentive, nearly doubles the energy savings per rebate dollar. Payment of the incentive to the home manufacturer would be subject to demonstrated completion of the following items:

- Construction in the plant of the home with features that meet or exceed the provisions of the ENERGY STAR New Homes program for manufactured homes along with all required documentation.
- Affixing the U.S. EPA ENERGY STAR (blue) and SBRA Quality Assurance (gray) labels to the home (see Figure 1), signifying that the home is built in accordance with the program quality control procedures.

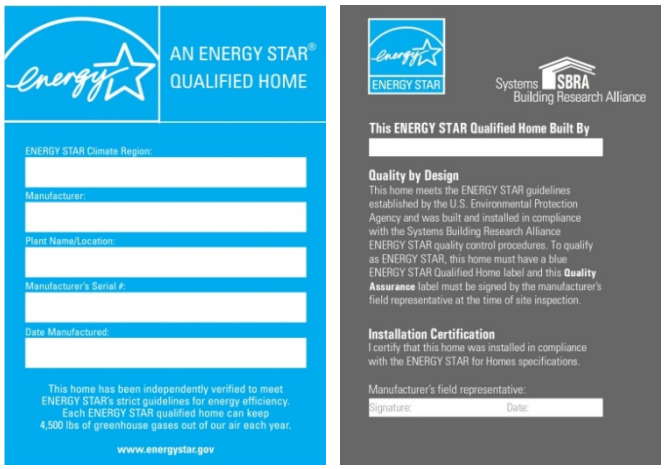

Figure 1. Labels for ENERGY STAR Manufactured Homes

[2] Based on 2013 market data.

- Recording information about the home in the ENERGY STAR ***Information Manager***, SBRA's proprietary web-based compliance tracking software.
- Installation of the home at the building site and completion of the ENERGY STAR ***Site Installation Checklist***. As part of this process, verifying the installation of the heat pump as required under the program.
- Signing the Site Installation Checklist and the Quality Assurance label by an authorized agent of the manufacturer.
- Archiving documentation detailing the items above for inspection by SBRA and the plant's ENERGY STAR Certifier. (The Certifier will further verify compliance with these requirements by testing in the field a representative sample of homes built by the manufacturer.)

Scope of Work

Implementation of the ENERGY STAR Manufactured Housing Program would consist of two main efforts: initial development, coordination and outreach activities to launch the program in EKPC's service area, and ongoing facilitation activities required to review and approve homes for the rebate.

Task 1. Program Start-Up

This task includes the following start-up activities needed to launch the program:

- Develop a ***Zip Code Look Up Tool*** to be used by plants and SBRA to verify that a home is located in EKPC's service area;
- Modify SBRA's databases for compliance tracking and monthly reporting to EKPC;
- Coordinate with EKPC to establish a process for verifying homes that are located on the border or "cusp" of EKPC's service area;
- Conduct outreach to plants and educate key plant personnel on EKPC program procedures and requirements; and,
- Execute a Memorandum of Understanding (MOU) with each plant stipulating the terms and conditions of participating in the Program.

Task 2. Program Facilitation, Rebate Management and Ongoing Support

Program facilitation activities include the following:

- **General program administration, management and oversight:** Create management systems, day-to-day program administration, contract administration, overall coordination and general liaison with EKPC Program Manager to review program status and resolve issues.
- **Verify home eligibility:** Identify potential program homes in the "pipeline" and follow-up with plants to encourage submission of rebate documentation; coordinate with EKPC to verify customer account or home address for "cusp" homes.
- **Compliance tracking and verification:** Review data provided by the home manufacturer via ***Information Manager*** and review the completed ***Site Installation Checklist*** to track and verify compliance of submitted homes and heating/cooling equipment with program requirements; follow up with manufacturer on any missing information or documentation.
- **Monthly invoicing and reporting:** Compile data and provide monthly report to EKPC on ENERGY STAR home production and completions, and progress toward meeting program goals. The data listed below will be provided in MS Excel format along with the invoice each month. The completed ***Site Installation Checklist*** for each home also will be uploaded in EKPC's Energy Efficiency Collaborative Platform (EECP), EKPC's DSM program tracking system.

HOME	HOME MANUFACTURER	PROGRAM TRACKING
Home Serial No.	Corporate Parent Company	SBRA Invoice No.
Manufacture Date	Plant Company Name	Date Received
Installation Checklist Date	Plant City	Date Approved
Home Sq Ft	Plant State	Notes
HOMEOWNER	**HOME RETAILER**	**EQUIPMENT**
Homeowner Name	Retailer Company Name	Furnace kW
Home Street Address	Retailer Street Address	A-coil Manufacturer/Brand
Home City	Retailer City	A-coil Model Mo.
Home State	Retailer State	Condenser Manufacturer
Home ZIP	Retailer ZIP	Condenser Model Mo.
Home Phone *(if provided)*	Retailer Contact Person	Size (cooling tons)
Utility ID *(provided by EKPC)*	Retailer Phone *(if provided)*	Ratings: HSPF, SEER, EER

- **Process incentive disbursements:** SBRA will work with EKPC to provide information required for each home in the EECP system. Information may be provided monthly for automated uploads in the EECP system or may be entered by SBRA. The EECP will generate monthly payments to SBRA based on the number of ESMHs completed on the EKPC system. Rebates will be paid by SBRA to the manufactured home plants.
- **Quality control:** SBRA will provide independent review, quality control and technical support to manufactured housing plants. Through existing protocols, SBRA's network of ENERGY STAR Certifiers will inspect in the field a sample of homes for compliance with the ENERGY STAR provisions.

Cost Proposal

The program cost estimate is based on **400 homes** qualifying for the rebate. The total cost of the program for the first 18 months would be **$765,800** and is divided in two parts as follows:

- **Rebates:** A **$1750** rebate shall be provided to manufactured home producers for each electrically heated ENERGY STAR home sold to an EKPC customer and equipped with a heat pump. The projected number of homes to be covered under the program is 400, for a total rebate budget of **$700,000**.
- **Service Fee:** For services to conduct Task 1 Program Start-up activities and Task 2 Program Facilitation, Rebate Management and Ongoing Support as described above. Total payments for these tasks shall not exceed **$65,800** and is divided in two parts as follows:

TASK	PAYMENT STRUCTURE	COST
1. Program Start-Up	Time & Materials, Not-to-Exceed	$5,800
2. Program Facilitation, Rebate Management and Ongoing Support	Fixed-Unit-Price, Performance-based	$150 per home, $60,000 total

Key Contacts

Systems Building Research Alliance
1776 Broadway, Suite 2205
New York, NY 10019
www.research-alliance.org

Emanuel Levy
Executive Director
elevy@research-alliance.org
212-496-0900 ext. 140

Gwynne Koch
Contracts & Accounting
gkoch@research-alliance.org
212-496-0900 ext. 120

Authorized By

Name: Emanuel Levy	Executive Director Title	July 1, 2014 Date