Understanding the Core Requirements of Home Performance with ENERGY STAR

Ely Jacobsohn, US DOE
Courtney Moriarta, SRA International
Caroline Hazard, SRA International

ACI National, May 2013
Today’s Agenda

1. Update on HPwES
2. A Preview of Changes to the Sponsor Guide (v1.5)
3. Next Steps
Facilitate the achievement of scale in the HP industry by designing a more consistent, replicable program model and expand participation of the HPwES Program while providing the flexibility necessary for the home performance industry to be successful.
“If government can reduce costs and increase flexibility by granting discretion, and if it can do so without creating uncertainty, evasion, or confusion, it should grant discretion.

“If government can reduce costs and increase simplicity by producing clear results, and if it can do so without creating expensive and pointless rigidity, it should opt for clear rules. “

“The project of simplification will call for an increase in discretion in some domains and an increase in clear requirements in others.”

How do we deliver HPwES?

Voluntary public-private partnership to provide solutions to homeowner’s performance issues with:

- A trained workforce
- Whole-house assessment
- Marketing promotions & incentives
- QA/QC structure
- Opportunities for homeowner and contractor recognition
Recent Achievements

• Over 50 Program Sponsors nationwide
• Over 250,000 homes improved since 2002
• Over 1,900 participating contractors
• Added 6 new Sponsors during 2012
• Helped develop 3 regional collaboratives
• Developed the Century Club Web Button for contractors
• Enhanced the HPwES Website
HPwES Opportunities in a Changing Market

2012 Market Share Results

- **High-Volume Sponsors**
  - Share: 74%
  - Active Sponsors: 8
  - Growth relative to 2011: 32%

- **Mid-Volume Sponsors**
  - Share: 24%
  - Active Sponsors: 22
  - Growth relative to 2011: 27%

- **Low-Volume Sponsors**
  - Share: 2%
  - Active Sponsors: 20
  - Growth relative to 2011: 20%
Analysis of the 2012 HPwES Annual Reports

• In January, DOE issued an Annual Report Data Call to collect:
  ➢ Final overall CY 2012 results; and
  ➢ Program plans for CY 2013 and beyond

• Data will inform program support and strategy

Response Results:
• 43 Sponsors responded representing 91% of the 2012 Project totals (71,235 projects)
• Caution in drawing conclusions:
  ➢ Varied interpretations on data requested
  ➢ Not all questions answered
We will build upon the HPwES platform to enhance consistency and work towards scalability.

**HPwES 1.0 (current)**
A whole house process supporting a building science based approach to improve existing homes and achieve energy savings with third-party quality oversight.

**HPwES 1.5 (consistency)**
Clarifies the requirements for the delivery of a consistent and replicable HPwES program platform.

**HPwES 2.0 (vision)**
Improve the scalability by creating more opportunities for participation and enabling fact-based means for valuing energy efficiency and associated benefits.
Evolution of HPwES – Developing v1.5

HPwES Version 1.0
• Consistency in concept but many different interpretations
• Lack of clarity on minimum requirements
• Much left to interpretation at the local level

HPwES Version 1.5
• Uniform program platform
• Well-defined core elements and minimum standards
• Flexibility to fit many markets but still recognizable as a national program
Revising the Program Sponsor Guide

Purpose:

• Help current and prospective Sponsors plan, develop and implement local HPwES programs
• Outlines what is required as well as recommended methods to meet those requirements
• Provide relevant, easily accessible guidance for new as well as mature HPwES Sponsors

Timeline:

• Draft for public comment in May 2013
• Issue for implementation in Q3 ‘13
Summary of what’s changing in the Sponsor Guide

**Structure and layout**
Build specific sections to facilitate:
- Clarity
- Use-ability
- Modular updates

**Minimum Requirements**
- Summary Checklists
- Specifications for compliance
- for the aspects of a HPwES program

**Recommended Approaches**
- Optional guidance
- Suggested strategies and tactics
- Lessons learned and examples

**Tools & Resources**
- Parity in support for industry tools
- Updated references and links
- Revised and renewed templates
### Issuing and Updating the Revised Sponsor Guide

DOE intends to issue the Guide electronically

<table>
<thead>
<tr>
<th>Minimum Requirements</th>
<th>Recommended Approaches &amp; Guidance</th>
<th>Tools &amp; Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Downloadable Document</td>
<td>Categorized and searchable online content</td>
<td></td>
</tr>
</tbody>
</table>

### Making future updates to the Guide

<table>
<thead>
<tr>
<th>Minimum Requirements</th>
<th>Recommended Approaches &amp; Guidance</th>
<th>Tools &amp; Resources</th>
</tr>
</thead>
</table>
| • Periodic/ as needed transparent and public vetting process  
  • Grace period for adoption of any new requirements | • Ongoing updates to offer new content and resources as they become available |                  |
Ensuring Public Confidence in ENERGY STAR

DOE will work with Sponsors to resolve any conflicts or non-compliance by seeking to resolve all matters informally.

- DOE will issue corrective actions to Sponsors for non-compliance, such as:
  - Mis-use of the HPwES name and/or logo
  - Consistently late and/or incorrect quarterly or annual reports
  - Not following program requirements

- Corrective Action Process
  1) DOE informally seeks to resolve non-compliance
  2) DOE issues corrective action letter
  3) DOE terminates the partnership
Analysis Results: Marketing Strategies and Tactics

Confidence in data content is limited due to variance in respondents interpretation of questions posed in the 2012 annual data call. Additionally, analysis is compounded by limited dataset.
## Preview: Proper use of the HPwES Logo

<table>
<thead>
<tr>
<th>Summary of updates</th>
<th>Reorganized with no major changes</th>
</tr>
</thead>
</table>
| **Minimum Requirements** | • Adhere to the ENERGY STAR Identity Guidelines  
  • Use the HPwES name and logo in materials  
  • Manage logo use by participating contractors |
| **Recommended Approaches** | Tips to manage logo use |
| **Tools/Resources** | Link to current ENERGY STAR Identity Guidelines |
Analysis Results: Cumulative Program Cost to Sponsors

- Total reported cost to Sponsors = $210 million
- 2.4 to 1 investment of total Sponsor costs to homeowner incentives

Confidence in data content is limited due to variance in respondents' interpretation of questions posed in the 2012 annual data call. Additionally, analysis is compounded by limited dataset.

N=40 Sponsors
## Summary of updates
- Reorganized with no major changes
- Clarification of minimum requirements and steps to become a HPwES Sponsor.

## Minimum Requirements
- Sign HPwES Partnership Agreement
- Complete, and update annually, a HPwES Implementation Plan
- Provide quarterly and annual data on the status of HPwES Program implementation

## Recommended Approaches
Tips on:
- setting goals and objectives
- Program administration and cost
- Addressing program cost-effectiveness

## Tools/Resources
Links to:
- Better Buildings Residential Program Solution Center
- Industry reports and guides
## Summary of updates

Describes Sponsor responsibilities for recruitment, qualification, training, and technical support of contracting network.

### Minimum Requirements

- Develop a contractor recruitment plan
- Provide a Program Orientation on program goals and requirements to participating contractors
- Ensure availability of home performance skills training (technical, software, sales, business development, etc.)
- Provide technical support for participating contractors and energy advisors

### Recommended Approaches

Tips on:
- What to include in a contractor participation agreement
- Recruitment, training, and credentialing

### Tools/Resources

Links to:
- Standard Workforce Specifications
- Industry standards, reports, and guides
## Summary of Updates

- Explicitly lists and describes criteria for minimum elements
- Removed references to “comprehensive” in favor of focusing on building science, systems-based approach
- New section on requirements for multi-family units HPwES projects

## Guiding Principles

- Basis in building science
- House as a system approach
- Inspect and measure as needed
- Document, analyze and report findings

## Anticipated Design Benefits

- Requirements are designed to allow for a variety of different program approaches while maintaining a consistent minimum standard of what qualifies as a HPwES HPA
- Allows for some diagnostic tests to be completed based on specific site conditions and/or in conjunction with installations instead of requiring all tests during the HPA all the time.
Minimum Requirements

- Develop and require a HPA for each HPwES project, ensuring, at a minimum, the following tasks occur at some point in the HPA process:
  - Customer interview
  - Review of energy bills, if available
  - Visual inspection, interior and exterior
  - Data collection of building assemblies and mechanical systems
  - Minimum diagnostic tests

- Develop and require a HPA Summary Report for each HPwES project, which includes at a minimum:
  - Prioritized list of recommended improvements (the proposed improvement measures)
  - Savings projections
  - Notice of health and safety related issues
## Preview: Project Installation

<table>
<thead>
<tr>
<th>Summary of updates</th>
<th>Describes Sponsor responsibilities for recruitment, qualification, training, and technical support of contracting network.</th>
</tr>
</thead>
</table>
| **Minimum Requirements** | • Develop and require measure installation specifications, including at a minimum:  
  ✓ Loading order of installed measures consistent with the contracted Scope of Work (SOW)  
  ✓ Compliance with local building codes and permitting procedures, industry-accepted standards, & manufacturer’s specifications  
  ✓ Completion of installation by qualified workers  
  
  • Develop and require, test-out procedures, which include at a minimum  
  ✓ Visual verification, review of commissioning reports, and diagnostic tests as necessary  
  ✓ Combustion safety checks for all homes with combustion appliances  
  ✓ Blower door tests when installed measures impact infiltration rates  
  ✓ System airflow and/or static pressure tests when duct sealing measures are installed |
Analysis Results: Quality Assurance

Field Inspection Sampling Ratio

- 49% 5-10%
- 12% 11-49%
- 10% 50-99%
- 9% 100%
- 9% 3 tiers

Field Inspection Schedule

- 60% During Assessment
- 63% During Test-out
- 100% Post installation

• 56% of Sponsors have in-house staff to conduct inspections
• 96% complete post-installation inspections within 3 months of project completion

Confidence in data content is limited due to variance in respondents interpretation of questions posed in the 2012 annual data call. Additionally, analysis is compounded by limited dataset.

N=43 Sponsors
## Preview: Quality Assurance

### Summary of updates
- Clarifies definitions and terminology related to Quality Assurance (QA) and Quality Control (QC)
- Introduces a new (optional) systems-based approach to quality assurance.

### Minimum Requirements
Allows for Sponsors to choose:
- Continue using the current QC based system (100% desk reviews + 5% field inspection)
- Establish a Quality Management System.

### Recommended Approaches
Tips on:
- Designing a QC-based or a QMS-based Quality Assurance Plan
- Addressing non-conformities and remedial actions

### Tools/Resources
Links to:
- Industry standards, reports, and guides
## Preview: Tracking and Reporting

<table>
<thead>
<tr>
<th>Summary of updates</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Reorganized with no major changes</td>
</tr>
<tr>
<td>• Clarifies reporting and tracking terminology</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Minimum Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Quarterly reporting on:</td>
</tr>
<tr>
<td>✓ Verify/ update contractor contact info and status</td>
</tr>
<tr>
<td>✓ Verify/update completed projects and field inspections for the current and past 2 quarters</td>
</tr>
<tr>
<td>✓ Completed projects by type: single family vs. multifamily</td>
</tr>
<tr>
<td>• Annual reporting on:</td>
</tr>
<tr>
<td>✓ Verified and updated contact information</td>
</tr>
<tr>
<td>✓ Verified and updated program URL and description for HPwES website</td>
</tr>
<tr>
<td>✓ Updated program implementation plan elements</td>
</tr>
<tr>
<td>✓ Summary results of preceding program year</td>
</tr>
<tr>
<td>✓ Summary goals for upcoming program year</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tools/Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Links to:</td>
</tr>
<tr>
<td>• Templates</td>
</tr>
</tbody>
</table>
Our Next Steps

**May**
- Issue Draft Revised Sponsor Guide (v 1.5) for public comment

**June-July**
- Receive and review comments
- Revise draft Sponsor Guide

**July-Aug.**
- Issue the final Sponsor Guide (v1.5)

**Through 2014**
- Year for implementation of v1.5
- Continued research & pilot (v2.0)
Research and Pilot Stage-Gate Project Management

**HPwES Goal:** To develop a scalable Program which is technologically and economically viable

**Approach:**
1. Provide a consistent and clear definition of HPwES Program
2. Ensure the quality delivery of both energy savings and health and safety performance improvements
3. Facilitate infrastructure development that supports quality whole-house improvements
4. Expand HPwES to take advantage of the homeowner’s multiple decision points related to home improvements

**Objectives:**
- Increase participation
- Increase traction (e.g. results) for sponsors and participating contractors
- Adherence with HPwES program requirements (QA)
- Increase recognition for HPwES brand
- Increase performance (quality, comfort etc.)
- Improve administrative and operational efficiencies
Questions & Answers
Do you want HPwES News? Join our Stakeholder Email List! Email us at HomePerformance@EnergyStar.gov to join

http://www.energystar.gov/homeperformance