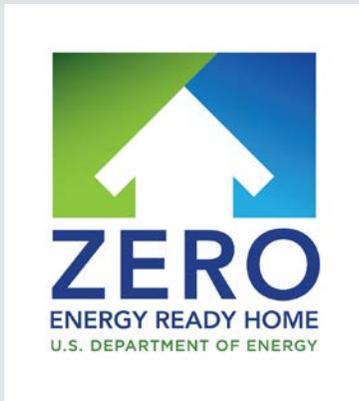


DOE Zero Energy Ready Home

Second Leading Rater Roundtable Summary

May 2017



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DOE Zero Energy Ready Home
Second Leading Builder Roundtable Summary

February 26, 2017
Scottsdale, Arizona

Prepared for
DOE Zero Energy Ready Home Program

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May 2017

Table of Contents

1	Roundtable Meeting Information	1
1.1	Participants	1
1.2	Zero Energy Ready Home Staff	1
1.3	ENERGY STAR Certified Homes Staff	1
1.4	Purpose	1
1.4	Desired Outcomes	1
2	Roundtable Agenda	2
3	Opportunities for Builders to Improve Performance	3
4	Key Lessons Learned Promoting and Verifying Zero Energy Ready Homes	5
5	Building America Solution Center	7
6	Key Challenges Moving Forward to Engage Builders with Zero Energy Ready Homes	8
7	What Can DOE Do Better Supporting HERS Raters with Zero Energy Ready Homes?	10
	Appendix A: DOE Actions in Response to First Leading Rater Roundtable Feedback	12



1 Roundtable Meeting Information

1.1 Participants

- Daran Wastchak, DR Wastchak, LLC
- Shawn Lemonz, DR Wastchak, LLC
- Randy Plumlee, TexEnergy Solutions
- Layla Thomas, TopBuild Home Services
- Robbie Schwarz, EnergyLogic
- Sandy Gallo, Skyetec
- James Rodriguez, Fox Energy Specialists
- Michael Bestenlehner, Best Energy
- Chris McTaggart, BER

1.2 Zero Energy Ready Home Staff

- Sam Rashkin, DOE
- Eric Werling, DOE
- Joe Nebbia, Newport Partners, LLC
- Jamie Lyons, Newport Partners, LLC
- Sam Bowles, Newport Partners, LLC
- Chrissi Antonopoulos, PNNL

1.3 ENERGY STAR Certified Homes Staff:

- Dean Gamble, EPA

1.4 Purpose

A dramatic movement to zero energy ready homes is gaining momentum. This includes statewide codes, large developments, and a growing commitment to the DOE Zero Energy Ready Home program. Continued progress will rely on an increasing number of Home Energy Rating System (HERS) raters effectively bringing the business case, technical solutions, and verification services for Zero Energy Ready Home to our nation's builders. At this meeting, a select group of HERS raters will gather and share lessons-learned and key challenges moving forward moving the housing industry to high-performance homes.

1.4 Desired Outcomes

- List of key lessons-learned by HERS raters promoting and verifying Zero Energy Ready Homes
- List of key challenges moving forward engaging builders to participate with Zero Energy Ready Homes
- List of what DOE can do to better support HERS raters promoting and verifying Zero Energy Ready Homes
- Enhanced ability for raters to add builder value by leveraging Building America Solution Center

2 Roundtable Agenda

February 26th, 2017		
Time	What	Who/How
8:00 – 8:30 am	Networking Breakfast	
8:30 – 9:00 am	Meeting Review/Agenda /Introductions Biggest opportunity for builders to improve performance	Sam Rashkin Around the Room
9:00 – 9:30 am	Key lessons learned promoting and verifying ZERH	Cards/Sorting
9:30 – 9:45 am	Sort/Prioritize key lessons learned	Group Ranking
9:45 – 10:00 am	Break	
10:00 – 10:45 am	How to double your value to builder clients in 15 minutes	Chrissi Antonopoulos
10:45 – 11:15 am	Key challenges moving forward engaging builders with ZERH	Cards/Sorting
11:15 – 11:30 pm	Sort/Prioritize key challenges moving forward	Group Ranking
11:30 – 11:50 pm	What can DOE do better supporting HERS raters with ZERH	Brainstorm
11:50 – 12:00 pm	Wrap-Up/Summary	Sam Rashkin, +/-

3 Opportunities for Builders to Improve Performance

To begin the meeting, participants took turns going around the room introducing themselves and were asked to provide one or two examples of opportunities currently being missed by builders that would improve the performance of their homes. A summary of their feedback is provided in the table on the following page. In general, the comments provided by the raters in the room either related to the missed opportunities in business/sales or the technical opportunities being missed that would improve the performance of their homes.

Regarding business/sales, much of the conversation related to the lack of knowledge and education of both trade contractors and consumers (homeowners). It was nearly unanimous among the group that in today's environment, builders are just managers of a process and all the work is subbed out to various contractors. Thus, it becomes very difficult to educate everyone involved in the actual construction process because there are so many players involved and often it's not the same crew from day to day. Not having trades who are aware of the requirements and how to properly meet them is a major obstacle.

There was a lot of discussion about consumer education as well. Builders often struggle with communicating the value of high performance homes and rating/labeling programs because there is an overall lack of knowledge on what a high performance home truly is and the benefits of one compared to a regular code built home. Sales staff should be educated on the benefits of the home and be able to effectively convey the value to potential homeowners.

On the technical side of things, some of the raters noted specific components that have created issues and certain building best practices like getting ducts inside conditioned space, proper duct sealing, and air sealing and framing details. Additionally, the rates indicated there was a need for further education for both builders and HVAC trade contractors on indoor air quality.

**HERS Rater Feedback:
Opportunities for Builders to Improve Performance**

Category	Lessons Learned
Business	<ul style="list-style-type: none"> • Leverage off better code (2015 IECC) • Enhanced verification • Specialization of trade partners • Builders are not builders; they are managers of a process • Trade knowledge connection between designer and user • Rater churn and burnout
Sales	<ul style="list-style-type: none"> • Warrantee link – promise vs. actual savings • Creating the link between customer expectations and what the home can actually provide • Education on building science • Convey the value of rating/label services • Better public education on energy efficiency • Understand the cost per house to get the details right • Builder sales staff not able to communicate the value of the program to potential homeowners
Components	<ul style="list-style-type: none"> • High-efficacy lighting • Distributed solar coop, power purchase agreements, solar gardens • Water efficiency
Indoor Air Quality	<ul style="list-style-type: none"> • Better understanding of IAQ for builders (ventilation) and HVAC contractors • Indoor air quality and health • ERV/HRS ventilation materials selection
Ducts	<ul style="list-style-type: none"> • Ducts in conditioned space (or foamed) • Ducts sealed and inside
Enclosures	<ul style="list-style-type: none"> • Slab edge insulation • Air-sealing and framing • Insulation quality

4 Key Lessons Learned Promoting and Verifying Zero Energy Ready Homes

During the next meeting module, participants were asked to identify the key lessons learned from their experience promoting and verifying Zero Energy Ready Homes. Their feedback is summarized in the table on the following page. Items were grouped together into different categories and then voted on by the participants to help prioritize the different topics.

The group indicated that Zero Energy Ready home program is great for the top end builders and that converting these builders to the program and getting them to commit is not difficult. However, outside of the top builders, the majority of builders aren't interested in the ENERGY STAR program, much less ZERH because of issues with HVAC requirements and lack of perceived value in home performance labels in general. Part of this is due to the lack of a knowledgeable sales force and the difficulty in builders and their sales team have in communicating the value of a high performance home to consumers.

The group also expressed that the Zero Energy Ready Home program was effective in using "off the shelf" programs to allow for simpler adoption and piggybacking on other labels adds marketing value. Using this approach, builders can gain an understanding of the program using a stair-step approach (good, better, best) and show how each step is linked to one another (code to ENERGY STAR to ZERH). Using this model, the program also helps to minimize confusion by using commonly known specs and building on current code requirements.

Key Lessons Learned Promoting and Verifying Zero Energy Ready Homes

Category	Lessons Learned
Marketing (4 Votes)	<ul style="list-style-type: none">• Builders don't even want to do ENERGY STAR<ul style="list-style-type: none">○ HVAC Issues○ Homeowners don't value the label• Capable sales force• Support materials help reinforce the vision• Exclusivity- few builders• Difficult to have sustained campaign• Difficult to have good sound bites and talking points• Lack of deliverables to builders/owners
Plug and Play (6 Votes)	<ul style="list-style-type: none">• Relying on "off the shelf" programs allows for simpler adoption and piggybacking on other labels for marketing• Works best to use stair step approach (good, better, best)• Integrate known or distinct programs and specs, minimize confusion• Link between everything they are doing (code, ESV3, DOE ZERH, 7 mandatory items list)• Ease of use
Conversion/ Commitment (7 votes)	<ul style="list-style-type: none">• Builder buy-in at a high-level (more educated – more innovative)• Link purchasing and trades• Developer based programs drive it down to the builder and consumer• Verification<ul style="list-style-type: none">○ Leadership understands○ Boots on the ground does not
Finance (2 Votes)	<ul style="list-style-type: none">• Finance and appraisal• Cost vs. Value
Technical (1 Vote)	<ul style="list-style-type: none">• Water delivery can be challenging for new builders to the program

5 Building America Solution Center

The next part of the meeting was a tutorial/walk through of the Building America Solutions Center to introduce it as tool for the group to use and to share with their builder clients. During this session, the participants learned about how they can use the Solutions Center as a resource for information preparing customized sales binders and sales sheets for their builder clients. Some suggestions/recommendations identified by the group are listed below.

Building America Solutions Center Suggestions/Recommendations

- Currently Download PDF
 - Need downloadable format for language conversion (Spanish)
 - Could use Adobe Pro
 - Target Content
 - Ability to customize further
 - Add default images with alternatives
 - Undertake a proactive effort to build CAD library
 - Publish a list of needed details
 - Fund development
 - Prioritize
 - Host a competition or challenge to provide details
 - Add “most popular” or “trending” items to BASC
 - Indoor airPlus consumer support and training details need to be added
-

6 Key Challenges Moving Forward to Engage Builders with Zero Energy Ready Homes

The second half of the meeting addressed key rater challenges moving forward related to the Zero Energy Ready Home program. A full summary of the attendee input is provided in the table on the following page. Aside from a few technical issues, mainly getting the ducts in conditioned space, the majority of the conversation centered around improving training and education and effectively communicating the value of a Zero Energy Ready Home to both builders and consumers.

Training and education was a topic that was discussed throughout the meeting and was again raised with regards to what the key challenges moving forward would be. As previously discussed, builders today are primarily managers of the construction process and while they might be educated on program requirements, this is typically not the case with their subcontractors. Not only do these trades need to be educated on the program requirements, verification is needed to ensure they are actually following through in the field.

The value of high performance programs like the Zero Energy Ready Home program was also identified as a key challenge. This related both to builders and consumers. For builders, many of them don't see value in home labeling programs because they don't believe consumers value it. For them, building a Zero Energy Ready Home means an increase in their cost of construction and for many, that cost is not justified. For that reason, the group indicated it is important to gain "buy-in" from developers who can use the program to differentiate their communities. Continued focus on outreach to consumers and educating them on why a Zero Energy Ready Home is the best choice in a home will create consumer demand and help pull builders along.

Key Challenges Moving Forward with Zero Energy Ready Homes

Category	Challenges
Technical	<ul style="list-style-type: none"> • Ducts in conditioned space • Architectural space for ducts • Hot water obstacles with ANSI rating change • Continuous insulation
Training & Education	<ul style="list-style-type: none"> • Trade contractor unfamiliarity with requirements...non-standard • Trade knowledge • Trades and superintendents not following through • Labor cost and material cost rising significantly • Labor shortage/training challenges • ENERGY STAR V3.1 transition
Cost	<ul style="list-style-type: none"> • Cost to builder • Cost objections • Cost for program components • Overcoming cost vs. marketability
Value	<ul style="list-style-type: none"> • Expressing value • Consumer demand • Showing value • Financing (HUD/FHA, Fannie/Freddie) • Insurance
Buy-In	<ul style="list-style-type: none"> • Get buy-in from developer because builder doesn't value programs • "New" programs mean more headache for tracking difference. "What do we need to do now?" • Perception builder has that consumer does not want it and that cost is not justified • Outreach to builders • Develop comprehensive sales pitch for builder

7 What Can DOE Do Better Supporting HERS Raters with Zero Energy Ready Homes?

To wrap up the meeting, participants were asked to identify key actions the Department of Energy could take to better promote and continue the Zero Energy Ready Home movement across the country. A summary of their input is provided in the table on the following page. Many of the ideas were related to previous discussion throughout the meeting. Not surprisingly, education, marketing, and sales assistance were at the forefront of discussion during this section.

Supporting raters with marketing and engaging builders was a nearly unanimous request amongst the group. DOE can help raters by working with sales teams to identify markets and builders of interest and then providing advanced training for both technical solutions and sales to the entire builder organization. It is important that all levels of a builder organization have some knowledge of the program and its value that can be effectively communicated to consumers. As discussed throughout this report, this education and engagement also needs to focus on trade contractors.

What can DOE do better in supporting HERS raters with Zero Energy Ready Homes?

- **Strategic Marketing**
 - Work with rater sales team to identify market/builders DOE wants to target
 - Market to builders
 - Continue to use rater feedback to make improvements to website (Building America Solution Center) to help train sales staff in both with the rater company and builders
 - Provide raters and builders with more advanced training and education on the benefits of energy efficiency programs (training on sales to consumers)
 - **Value Proposition Data**
 - Regional cost data for “balance of system” – it costs more for x but save on y and z
 - **Builder Engagement**
 - Sell to all levels of a builder organization
 - Executive, Purchasing, Operations, Warranty, Sales Team
 - Address value proposition and objections through decision and value engineering chain
 - Do focus group work with builder departments that influence ZERH go/no-go decisions (executive, sales/marketing, purchasing, field operations)
 - Better demonstrate the value proposition of raters, inspections, and program (data)
 - Help everyone understand the value of pre-planning way in advance
 - **Trade Partner Engagement**
 - Train-the-trainer sessions for trades
 - YouTube/Social Media experience
 - Trade training videos and language options – same video in English, Spanish, etc.
 - Work with HVAC industry to increase knowledge and consequence to avoid poor work
 - Trade Contractor Roundtable/Outreach
 - Best pathway for HVAC QA is with HVAC distributors
 - Help trades understand that the leap isn't that huge to comply with ZERH
-

Appendix A: DOE Actions in Response to First Leading Rater Roundtable Feedback – 2016

Feedback Category	Rater Feedback Requesting DOE Actions	DOE Progress
Marketing Tools	Plaques for homes	<p>Although the DOE Zero Energy Ready Home program does not have funding to create plaques for each home, we do continue to make available logos and sticker specs so that sticker labels can be created. We have seen builders and raters do creative things with the logo such as create window clings or company vehicle banners using the graphics.</p> <p>Our focus in marketing materials has been to expand drop-in messaging to aid in partner storytelling, as well as developing a consumer video, which is intended to introduce the program, it's message and the Tour of Zero.</p> <p>We have provided active partners with google ad content and guidance to help them in their local market.</p> <p>DOE Continues to work to provide special recognition for communities that have a commitment to DOE Zero Energy Ready Home. This could be in the form of a press release or newsletter highlight on a builder committing to build 100% of a subdivision or development to DOE Zero Energy Ready Home requirements. We also try to highlight large developments that have a certain number or percent of their units that must meet the program specs.</p>
	Create Marketing Collateral (Sample radio ads, banners) builder paid	
	Link ZERH brand to convincing storytelling	
	Collaborate with EPA to recognize cities/communities that have "above average" % of Energy Star/ZERH	
Networking	Provide connections – builders interested in ZERH w/ raters interested in delivering ZERH	We have reached out to raters asking them to set up meeting with their leading builders so that DOE Zero Energy Ready Home staff can partner with the raters to help sell the program to the builder.
Technical Resources	Education and Training: Series of videos on Zero Energy Homes from various perspectives: builder, rater, contractors, homeowner, real estate broker, politicians	DOE started by developing a consumer video to introduce the program and the Tour of Zero. Next steps include improving this video. We have also attempted to collect as much homeowner video testimonials as possible during the Housing Innovation Awards process by encouraging applicants to submit video.
	Develop Architectural Details (the perfect common wall; visual details like ice water in the oven; air barrier details and best construction ideas)	DOE has continued to populate the Building America Solution Center with as much technical details as possible. The BASC points builders toward details required for DOE Zero Energy Ready Home certification. We have also continued host, record, and post online technical webinars.
	Trade-Specific Training: builder sales staff, builder business, appraisals, purchasing, raters, etc.	DOE Zero Energy Ready Home continues to build its library of recorded trainings and have hosted a variety of topics including sales, the appraisal process, rater training. We also have technical webinars for various trades such as lighting design, efficient hot water distribution, and low-load HVAC design.
	Quantify Health	The closest we have come to quantifying health benefits is to compare the number of indoor quality measures in homes built to Zero Energy Ready Home requirements compared to homes built to other program or code requirements.

Program Developments	Create/modify standards for multifamily buildings (i.e. compartmentalization)	DOE has modified the Zero Energy Ready Home standards in several ways to help deal with the differences of multifamily buildings. First, we adjusted the air leakage target in the reference home for all attached dwellings. Next, we adjusted the hot water delivery efficiency requirements to more closely match available multifamily technology. Finally, we adjusted our program to match the Energy Star allowance of buildings up to 5 stories.
	Collaborate/negotiate with EPA to streamline Energy Star (i.e. abridge HVAC requirements to “most critical items only”)	DOE and EPA have a continued relationship making sure both programs work together. This is a collaborative relationship and feedback and new approaches are constantly being discussed.
	Application Product Interface (API) – speed data entry for certification process	DOE’s focus has been on developing an API on the back end to speed the reporting part of the certification process. This is an ongoing partnership with RESNET to improve automation of DOE Zero Energy Ready Home certification.
Valuation and Value Metrics	Develop a source for the value of high performance home features (Value propositions blown vs. batt; builder grade vs. triple pane; most common HVAC vs best; most common DHW vs best; resale green vs code, comate zone sortable program spec tool	While DOE must remain neutral on specific products, we do have several training modules based on different ways to get to the spec and discussions of the pros/cons to different approaches.
	Develop offset cost sheets for targeted best practices	While we do have an overall cost analysis that provides a national average cost for building Zero Energy Ready Homes and takes into account cost offsets in the approach, actual cost is so locally specific the developing meaningful cost offset data on specific measures can be difficult.
	Engage insurance industry to recognize ZERH value, especially disaster resistance option	DOE Zero Energy Ready Home does have an ongoing relationship with the insurance industry through IBHS and continues to co-promote the Fortified Home program.
	Convince rational lender	DOE continues to operate its lender partner category for DOE Zero Energy Ready Home and encourages the lending industry adequately value energy efficient and high performance components and systems in homes.

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