

# DOE Zero Energy Ready Home

## Fourth Leading Builder Roundtable Summary

December 2016



### **NOTICE**

This report was prepared as an account of work sponsored by an agency of the United States government. Neither the United States government nor any agency thereof, nor any of their employees, subcontractors, or affiliated partners, make any warranty, express or implied, or assume any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represent that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States government or any agency thereof.

---

**DOE Zero Energy Ready Home**  
**Fourth Leading Builder Roundtable Summary**

September 26, 2015

Dallas, TX

Prepared for

DOE Zero Energy Ready Home Program

Prepared by

Sam Rashkin, U.S. Department of Energy Building Technologies Office

Joe Nebbia and Sam Bowles, Newport Partners, LLC

December 2016



---

## Table of Contents

<b>1</b>	<b>Roundtable Meeting Information .....</b>	<b>1</b>
1.1	Participants .....	1
1.2	Zero Energy Ready Home Staff .....	1
1.3	Purpose .....	1
1.4	Desired Outcomes.....	1
<b>2</b>	<b>Roundtable Agenda .....</b>	<b>3</b>
<b>3</b>	<b>Consumer Video .....</b>	<b>5</b>
<b>4</b>	<b>Key Lessons Learned Constructing Zero Energy Ready Homes .....</b>	<b>7</b>
<b>5</b>	<b>Key Challenges Moving Forward with Zero Energy Ready Homes.....</b>	<b>10</b>
<b>6</b>	<b>Ventilation Discussion.....</b>	<b>14</b>
<b>7</b>	<b>What DOE Can Do to Support Zero Energy Ready Home Builders.....</b>	<b>15</b>
	<b>Appendix A: DOE Actions in Response to Third Leading Builder Roundtable Feedback.....</b>	<b>19</b>
	<b>Appendix B: DOE Actions in Response to Second Leading Builder Roundtable Feedback.....</b>	<b>21</b>
	<b>Appendix C: DOE Actions in Response to First Production Builder Roundtable Feedback....</b>	<b>22</b>



---

# 1 Roundtable Meeting Information

## 1.1 Participants

- Anthony Aebi, Greenhill Contracting, Inc.
- Anthony Maschmedt, Dwell Development
- Bill Rectanus, Thrive Home Builders
- Dan Welch, Bundle Design Studio
- David Hanawalt, Habitat for Humanity, Grand Traverse Region
- David Jones, Revival Homes
- Gary Ice, Insulsteel
- Geoff Ferrell, Mandalay Homes
- Glenna Wilson, Charis Homes
- Greg Mantell-Hecathorn, Mantell-Hecathorn Builders
- Gene Myers, Thrive Home Builders
- Hunter Mantell-Hecathorn, Mantell-Hecathorn Builders
- Jay Epstein, Health E Community Enterprises of Virginia
- Julie Knaggs, Knaggs Construction
- Kendall Carpenter, AquaZephyr LLC
- Kiere DeGrandchamp, High Performance Homes
- Luis Imery, Imery Group
- Michael Baechler, Pacific Northwest National Lab
- Michael Sollitto, Habitat for Humanity South Sarasota County
- Ray Pruban, Amaris Homes
- Rick Wertheim, United Way of Long Island
- Rob Howard, Habitat for Humanity of Catawba Valley
- Rodger Knaggs, Knaggs Construction
- Scott Sanders, BrightLeaf Homes
- Steve Bostic, Insulsteel
- Steve Brown, Carl Franklin Homes
- Tadashi Shiga, Evergreen Certified
- Ted Clifton, CVH and Zero Energy Plans
- Tina Bostic, Insulsteel
- Todd Scott, Charis Homes

## 1.2 Zero Energy Ready Home Staff

- Sam Rashkin, U.S. Department of Energy
- Jamie Lyons, Newport Partners
- Joe Nebbia, Newport Partners
- Sam Bowles, Newport Partners
- Ally Waranowski, Energetics

## 1.3 Purpose

The nation is on the cusp of a dramatic movement to zero energy ready homes. This includes statewide codes, large developments, and a growing amount of commitment to the DOE Zero Energy Ready Home program. Much of this progress can be attributed to a small contingent of our nation's leading builders who demonstrate the technical, cost, and design feasibility for this level of excellence. The purpose of this meeting is for the winners of the 2016 DOE Housing Innovation Awards to share lessons-learned and key challenges moving forward constructing Zero Energy Ready Homes and to provide feedback how DOE can improve the program.

## 1.4 Desired Outcomes

- Feedback and reactions to DOE Zero Energy Ready Home Consumer Video
- List of key lessons-learned by leaders constructing Zero Energy Ready Homes
- List of key challenges moving forward in constructing Zero Energy Ready Homes
- List of what DOE can do to better support Zero Energy Ready Home builders



## 2 Roundtable Agenda

September 28, 2016

Time	What	Who/How
1:00 – 1:15 pm	Meeting Review/Agenda /Introductions “Comments on ZERH Consumer Video”	Sam Rashkin Around the Room
1:15 – 1:45 pm	Key Lessons Learned Constructing to ZERH in 2015-16 <ul style="list-style-type: none"> <li>• Design</li> <li>• Technology/Best Practice</li> <li>• Construction</li> <li>• Verification</li> <li>• Sales/Marketing</li> </ul>	Cards/Sorting
1:45 – 2:00 pm	Sort/Prioritize Key Lessons Learned	Group Ranking
2:00 – 2:15 pm	<b>Break</b>	
2:15– 2:45 pm	Key Challenges Moving Forward with ZERH in 2016-17 <ul style="list-style-type: none"> <li>• Design</li> <li>• Technology/Best Practice</li> <li>• Construction Process</li> <li>• Verification</li> <li>• Sales/Marketing</li> </ul>	Cards/Sorting
2:45 – 3:00pm	Sort/Prioritize Key Challenges Moving Forward	Group Ranking
3:00 – 4:00 pm	Builder Topic: Mechanical Ventilation Strategies for Tight Homes	Discussion
4:00 – 4:20 pm	What Can DOE do Better Supporting ZERH Builders	Brainstorm



---

### 3 Consumer Video

The meeting began with a viewing of the recently launched consumer video. The group provided feedback and ideas for use and improvement of the video.

---

#### Audience:

- Also make video for Realtor and sales staff audience
- Make a video for the builder audience – with higher level of understanding than consumers
- Target the conversion of interested parties

#### Speaker:

- Include testimonials of real Zero Energy Ready Home Owners
- Personalize the video with testimonials on 7 systems
  - Hit Every demographic with short testimonials
- Include testimonials from builders
  - Why they build Zero Energy Ready Homes and what home they would live in
- Keep message short but make emotional connection by having real people talk

---

#### Content:

- Use the video to sell the brand
- Message needs to be simpler and more emotional. Less facts and technical jargon.
- Focus on carbon emissions – leave everything else out
- Focus on PR Hits – awards, top 1%, etc. Empower top of the class.
- Comfort is important
- Add maintenance cost with mortgage and energy equation
- Comparison bars on the brochure are much better coupled with testimonials
- Missing 30 seconds of attention catching info up front
- Speak to expertise and how it is the foundation of the program
- This won't replace builder marketing, but gives seal of approval from DOE

---

#### Functionality:

- Make it editable or customizable for builder (can drop in modules or specific homeowner testimony); add builder website
- Homebuyer talking is powerful – add customized clips option.



---

## 4 Key Lessons Learned Constructing Zero Energy Ready Homes

The builders discussed key lessons learned and experiences related to the construction of DOE Zero Energy Ready Homes. A major takeaway from the Roundtable was that sales and marketing of DOE Zero Energy Ready Homes is a significant challenge for Zero Energy Ready Home builder partners. Competing with existing homes and other new builds, partners find it difficult to communicate the true value and benefits of their high performance homes to potential customers. Educating American homebuyers on what a Zero Energy Ready Home is and how it's the better choice was a significant conversation topic during this module.

To help communicate the value to consumers, several builders shared a few of their successful efforts. A number of builders indicated they hold "Behind the Walls Tours" or "Rough-In Open Houses" to allow potential customers to see what goes into the construction of their homes that provides a superior homeowner experience. Other builders use I-Pads and actual wall sections during open house events to show how their construction makes a better home.

On messaging, it became clear that builders find it more advantageous to keep their message short and simple rather than dive too deep into technical talk. A simple message that communicates a Zero Energy Ready Home is a better home and the better choice is most effective. Once you get them engaged with a powerful message, you can then get deeper into the technical aspects of the home that make it better. One builder said, "People buy on emotion. They want to feel good about buying your home."

Building and promoting the brand was another major topic of conversation. Builders stressed the importance of always building the brand and constant promotion is essential. The majority of the participants indicated they were very active in social media and that it had tremendously helped grow their brand to the public. Many of these builders requested that the DOE Zero Energy Ready Home program be more active on social media and more aggressive in promoting the DOE Zero Energy Ready Home brand through social media channels.

## Key Lessons Learned Constructing Zero Energy Ready Homes

Category	Lessons Learned
<b>Construction</b>	<ul style="list-style-type: none"> <li>• Pre-construction meeting to bring all trades into project objectives</li> <li>• Simplification is a work force requirement</li> <li>• Sealants are my friend</li> <li>• Vested trade partners that understand and believe in our goals. Our assemblies have improved in the last year through better training and trade partner involvement</li> <li>• Bonus factor that you can see and feel               <ul style="list-style-type: none"> <li>○ Enhanced IAQ – MERV rating</li> <li>○ Quietness of home</li> <li>○ Instant hot water</li> </ul> </li> <li>• Solar thermal is the future</li> </ul>
<b>Verification</b>	<ul style="list-style-type: none"> <li>• Confusion how verification will be assessed</li> <li>• How does verification strategy impact design?</li> <li>• Do more than two blower door tests. Spend the money and get one yourself</li> <li>• Approximately half of the group monitors energy and half monitors utility bills</li> </ul>
<b>Design</b>	<ul style="list-style-type: none"> <li>• Detaching the garage from the home. You can't seal a garage passage door.</li> <li>• Integrated design is a must</li> <li>• Mechanical system BIM design documentation as part of the drawing set               <ul style="list-style-type: none"> <li>○ Use with rater</li> <li>○ Use with installer</li> <li>○ Reflected ceiling</li> </ul> </li> <li>• Efficient fan system</li> <li>• Implementing precast foundation walls</li> <li>• Third-party verifier as a partner</li> <li>• Advanced framing</li> <li>• Dropping from net-zero to Zero Energy Ready Home</li> <li>• Low cost balanced ventilation (without heat exchange)</li> <li>• Architect needs to specify location of HVAC, ERV, etc. (details on plans are critical)</li> <li>• Integrated design</li> <li>• Tighten building envelope and reduce air leakage</li> </ul>

---

**Sales & Marketing**

- Concerned with ROI and consumer education
  - “Behind the walls” we are selling a product that is different behind the walls that the consumer does not see
  - Keep it simple. Stress how it’s the better choice for them. And use social media
  - It’s all about building the brand. It’s half of what we do.
  - Behind the wall tour
    - Buyers
    - Brokers
    - Appraisers
    - Banks/Lenders
  - Zero Energy Ready Home Framework. Each home is unique. Decisions are driven by budget and what’s important to the client not me!
  - We have two iPads in the model that you can see the testimonials of homeowners plus actual displays of a wall section, ICFs, Zero Energy Ready Home tri-fold, videos, etc. (Dusty Shoe Open House)
    - Get attendees through e-mail newsletters
  - Include fortified homes as part of quality certification
  - Visit other DOE Zero Energy Ready Home Builders and see sales examples
  - Total cost of ownership
  - Find a realtor knowledgeable in high performance
  - Pay attention to customer warning signals. Don’t be afraid to say no.
  - Rough-in open houses
  - Use of social media
    - At Least ½ the group does this and requested more support in this area
  - People buy on emotion. They want to feel good about buying your home.
-

---

## 5 Key Challenges Moving Forward with Zero Energy Ready Homes

Builders were then asked to identify key challenges moving forward for DOE Zero Energy Ready Homes.

### ***Sales and Marketing***

Issues/concerns/ideas related to sales and marketing was a dominant topic of conversation throughout the meeting. What became clear during the session is that sales and marketing of DOE Zero Energy Ready Homes are much bigger concerns than technical barriers and questions about how to build the homes.

At least half of the room asked for a bigger social media presence from the DOE Zero Energy Ready Home program and more support overall from DOE in establishing the brand. They value the third-party validation and backing from a trusted source in the Department of Energy and want more people to be able to see that. They want the brand promoted more, particularly through social media channels because that is where the consumers are. Most of the builders indicated they were very active on social media and that it had helped their business tremendously.

Another common theme was more communication to consumers. One avenue was through a simplified consumer video, which connects on a more emotional level with the audience. Another was through education of real estate agents and getting them to understand the benefits of a Zero Energy Ready Home so they can communicate them properly to a potential home buyer. A concern with marketing Zero Energy Ready Homes was creating market distinction between green building codes as well as green-washing from builders providing lesser products. Many agreed that to truly connect with the home buyer, we can't keep calling these homes green or efficient, we need to continue to promote the benefits that will connect with consumers on an emotional level. The development of a consumer facing website that helps to promote these messages was a popular idea amongst the group.

Other issues that were raised were:

- Competition against conventional and existing homes
- Site location vs. performance metrics
- Quantifying a healthy home
- Increasing marketing dollars

### ***Education and Outreach***

The group agreed that educating a variety of different stakeholder groups was necessary in helping to continue to increase the market share of Zero Energy Ready Homes. Consumer education was high on this list highlighting the need for a strong consumer video.

---

Other education and outreach concerns/ideas include:

- Getting local government on board with education and endorsement
- Local training centers for walk-throughs for visuals and mock-ups
- Education for builders on PV
- Education for appraisers and realtors to consider above normal construction
- Education for youth and trades – relying on the next generation to continue the movement

### ***Technology***

This category had a lot of variety within the group. Several different builders mentioned the integration of smart homes and home automation packages that could also include smart monitoring systems. The advancements in smart home technology and the capabilities they have monitoring and reducing energy use with an interconnected home is a valuable package builders can offer.

Additionally, the majority of builders are still using stick-frame construction with only a few builders in the room constructing with SIPs and ICFs. While stick-frame construction remains the cheapest option because of the relatively low cost of lumber, many builders indicated that more time and investment should be made into understanding advanced wall systems. This would not only allow more people to understand how they work and their benefits, but also contribute to driving prices down.

Ventilation was another hot topic in regards to technology challenges based on feedback prior to the meeting. The issue of properly ventilating tight homes is an issue for many builders, including the need for supplemental dehumidification as well.

Other technology concerns moving forward:

- Integration of battery storage with PV and load management
- Affordable PV systems
- Affordable and reliable energy monitoring systems
- Going from Zero Ready to Zero at lower ownership costs

### ***Design and Construction***

This was a category in which the responses varied among the builders in the room. One of the concerns that was brought up several times and is consistent across other categories is the need to develop and educate the workforce, including all trades, and the next generation. Many builders indicated getting good quality trades is difficult and can be expensive, and then getting them to show up and do the work is another challenge.

Other design and construction concerns that were raised include:

- Building entire communities to benefit the surrounding area and its occupants.
- 3D BIM modeling with mechanical and plumbing
- Demonstrating retro-fit capability with Zero Energy Ready Homes
- Development of land and lots

## Key Challenges Moving Forward with Zero Energy Ready Homes

Category	Lessons Learned/Challenges
<b>Design &amp; Construction</b>	<ul style="list-style-type: none"> <li>• Community level thinking. Building entire communities to benefit the surrounding area and its occupants</li> <li>• 3D BIM modeling with mechanical and plumbing</li> <li>• Demonstrate retrofit capability</li> <li>• Development land and lots</li> <li>• Cost to build has gone up in recent years               <ul style="list-style-type: none"> <li>○ Labor</li> <li>○ Material</li> <li>○ Land</li> </ul> </li> <li>• Need trades showing up to do their work!</li> </ul>
<b>Technology</b>	<ul style="list-style-type: none"> <li>• Low load homes increase demand for smaller capacity HVAC equipment and need for supplemental dehumidification</li> <li>• Home automation package</li> <li>• Integration of battery storage with grid and load management</li> <li>• Affordable PV systems</li> <li>• Smart homes</li> <li>• Affordable and reliable energy monitoring</li> <li>• Going from Zero Ready to Zero at lower ownership costs</li> <li>• Do not try and make homes too tight. .6 ACH 50 might be too tight. Ventilation requirements become the largest load.</li> <li>• Fixing stick framing is putting lipstick on a pig. Spend more time and \$ driving down costs and familiarizing with SIPS and ICFs</li> </ul>
<b>Outreach &amp; Education</b>	<ul style="list-style-type: none"> <li>• Getting local government on board- education and endorsement</li> <li>• Training center as a walk through center for visuals and mock-ups</li> <li>• How to explain no additional home owner costs!</li> <li>• Consumer education about benefits of high performance and cost of ownership</li> <li>• Education for builder on PV</li> <li>• Education for appraisers and realtors to take in consideration above normal construction</li> <li>• Education for the youth and trades               <ul style="list-style-type: none"> <li>○ Youth is the next generation to keep this moving forward</li> </ul> </li> </ul>

---

## Sales & Marketing

- Competition against conventional homes and existing homes
  - Site location vs performance metrics
  - Affordability & land trust
  - Demonstrate true value to consumer of net-zero
  - Separation from green building codes and green washing sales and marketing
  - Developing a website that reflects what we are selling and show how different we are
  - Need Marketing Money/Resources
  - Government marketing of the brand that showcases “the future of housing today”
  - Quantifying a healthy home
  - Certify beyond Zero Energy Ready Homes to Zero Energy Homes
- 



## 6 Ventilation Discussion

Following feedback from previous meetings, DOE Zero Energy Ready Home staff asked attendees to identify a technical topic that they would like to discuss in depth. The most requested topic was ventilation strategies in DOE Zero Energy Ready Homes. Below are issues, possible solutions, and suggested research topics identified during the discussion.

Category	Discussion
<b>Issues</b>	<ul style="list-style-type: none"><li>• Impact of makeup air on performance of the home</li><li>• ERV Design<ul style="list-style-type: none"><li>○ Update in instructions on ERV related to RH and temp control</li><li>○ How to optimize ducting. In one example the central air handler unit was forcing back-flow through the ERV</li></ul></li><li>• Basic systems ok in dry climate</li></ul>
<b>Solutions</b>	<ul style="list-style-type: none"><li>• Dehumidify via earth tubes, which temper incoming ventilation air<ul style="list-style-type: none"><li>○ Good for some sites</li><li>○ Complicated design</li></ul></li><li>• High-velocity, Small Duct Systems<ul style="list-style-type: none"><li>○ Fresh air directly to coil</li><li>○ Electric filter</li><li>○ Use the air cyclor</li><li>○ Air slows in the coil and then speeds up</li><li>○ Great humidity control</li></ul></li><li>• Provide dryer exhaust makeup air, or use ventless dryer or heat pump dryer, which don't exhaust air from the home</li></ul>
<b>Suggested Study</b>	<ul style="list-style-type: none"><li>• Monitoring of IAQ as behavior modification rather than quantitative analysis.</li></ul>

## 7 What DOE Can Do to Support Zero Energy Ready Home Builders

The attendees provided feedback on how DOE could best use its resources to support their commitments to Zero Energy Ready Homes. This feedback is shown in the table below. DOE will report back at the Fourth Leading Builder Roundtable on how well it was able to address these suggestions.

DOE's responses to builder-requested actions from the Third Leading Builder Roundtable are provided in Appendix A. Appendices B and C contain this same information for the first two Leading Builder Roundtables.

Category	DOE Actions
<b>Networking &amp; Social Media</b>	<ul style="list-style-type: none"><li>• Social Media – This group needs to stay in touch on a quarterly basis;</li><li>• Social Media – more material</li><li>• Social Media – YouTube/Snapchat/Twitter – incorporate builder social media posts on DOE social media sites</li><li>• Social Media – DOE Zero Energy Ready Home Facebook Page</li><li>• Set up a private Zero Energy Ready Home Builder Member website; form some type of a membership to get more out of these relationships</li><li>• Brand Zero Energy Ready Home using Social Media</li><li>• Host professional-level information sharing (i.e. details on ventilation and IAQ) – more detailed than general guidance</li><li>• Create a map of all of the partners – for the builders who are here at the meeting; partners can refer leads to other active Zero Energy Ready Home builders</li><li>• Zero Energy Ready Home builders host other builders to look at their products and methods.</li></ul>

- 
- Marketing Tools**
- Keep the Message for Zero Energy Ready Homes Simple
    - Generate a buzz
    - Get it on social media
    - Let people ask the questions – don't tell them everything
  - New ad campaign for all consumers – not just those pre-disposed to Zero Energy Ready Homes
  - Have an easy interface with experience metrics – ability to add testimonials throughout the year, not just during the Housing Innovation Awards
  - Keep raising awareness of Zero Energy Ready Homes
  - Need better visibility in the community
    - A lawn sign design in the Marketing Tool Kit; compare Energy Star Home to a DOE Zero Energy Ready Home on this sign;
    - T-shirt design
    - Truck signage
  - Help us to build a World-Class website to tell our story; develop modules that builder can use

- Program Support**
- Waivers for HVAC QA Certified Contractors
    - Note: DOE is working with Energy Star on this issue and considering options for removing the requirement.
    - Group: it doesn't provide value, dropping it is "best idea I've heard"
  - Utility bill tracking – write model language for the homeowner to pre-sign
  - Secure Tax Credits for Zero Energy Ready Homes
    - Note: DOE cannot lobby Congress on tax policy
  - Publish the Green Appraiser List
    - Note: the Appraisal Institute already publishes this
  - Let architects create "Designed for Zero Energy Ready Home" plans

---

**Technical Support & Education**

- Educate third-party raters
- Conduct a transparent analysis comparing different design methods
  - Understand the nuances of how different software develops energy models;
  - Note: RESNET recently completed and presented a comparative analysis of how 3 different RESNET-accredited software packages rate the same prototype homes.
- HVAC Contractor Training and Credentialing
  - Don't just drop these; replace it with something;
- Operation & Maintenance Training
  - HFH in NC does a two-year maintenance program with HVAC contractor as part of the home's sale
- Consumer education on how to live in a Zero Energy Ready Homes
- Find solutions for ventilation loads

**Future Meetings**

- Integrate discussion with lunch to make it more productive.
- Groups to break out by construction methodologies
  - Stick-built; SIPs; ICF; etc.
- Working lunch
- Go back to full day or start at 10:00
- One project to work on as a group
  - Submit ideas beforehand
- Highlight a few builders to present their story
- Subgroups by type of construction
- Visit one or more local DOE Zero Energy Ready Home
- Get together regionally with Zero Energy Ready Home builders – perhaps quarterly



## Appendix A: DOE Actions in Response to Third Leading Builder Roundtable Feedback

Feedback Category	Builder Feedback Requesting DOE Actions	DOE Progress
<b>Marketing Tools</b>	Allow DOE Zero Energy Ready Home homeowner brochure to be more customizable	DOE Zero Energy Ready Home staff has focused on messaging going into the consumer video, which will in turn drive changes to the graphics and language in the homeowner manual. Once graphics are finalized we will be able to make individual graphics available to builders and add customizable features for the homeowner manual.  The homeowner manual provides general tips for living in a DOE Zero Energy Ready Home. For specific tips staff is considering ways to work this into the final manual, including using the customizable pages suggested at the builder roundtable.
	Provide builders with info-graphics as individual images from homeowner brochure	
	Provide logos/graphics for DOE Zero Energy Ready Home like those in National Green Building Standard Silent Sales Person	
	Develop homeowner tips for living in a DOE Zero Energy Ready Home – able to be exported into builder materials	
	DOE Zero Energy Ready Home training for homeowners	DOE Zero Energy Ready Home staff added a bonus category in the Housing Innovation Awards, encouraging builders to submit video or audio testimonials as part of their application. These testimonials are then incorporated into the Tour of Zero Profile for the home.  Staff is developing a consumer website for ZERH, which, in combination with the consumer video, and Tour of Zero, represents a major first step toward engaging consumers. DOE has completed version 1 of the DOE Zero Energy Ready Home Consumer Video  DOE Zero Energy Ready Home launched the Tour of Zero and is actively recruiting industry association and manufacturer partners to promote the tour and the DOE Zero Energy Ready Home brand.
	Customizable page behind each page of homeowner manual	
	YouTube videos about how it feels to live in a DOE Zero Energy Ready Home	
	Consumer Marketing tools – YouTube videos, web portal/homeowner section	
DOE to build the brand/blow the horn – market, brand, promote, support DOE Zero Energy Ready Homes		
<b>Networking</b>	Create a DOE Zero Energy Ready Home LinkedIn	DOE Zero Energy Ready Home LinkedIn site was launched and discussion topics were posted intermittently throughout the year.
	<b>DOE Communications</b>	
<b>DOE Communications</b>	Make Program Email update subject lines specific	DOE Zero Energy Ready Home staff focused the newsletter approach to include descriptive titles on focused topics. The newsletters are shorter and sent more often.
	Make program newsletters more single-focused	
	More concise email newsletters with descriptive subjects so reader can “triage” inbox review	
	Send information more often	In addition to shorter, more frequent newsletters, DOE Zero Energy Ready Home expanded information sharing by promoting videos, articles, and other media about partners throughout the year as it becomes available through blast e-mail notifications.
Send links to information. This often results in action. Otherwise, builder is too busy with day to day info and only accesses program materials when it’s time for rater to certify the home	Whenever possible, we have added links to materials in newsletters to allow the requested actionable content.	

<b>Utility Bills and other Data.</b>	Builder participant offered to share utility bill access letter template through DOE	DOE staff continues to consider ways to streamline utility bill data sharing as appropriate for the program
	Identify method – DOE or other – to aggregate and publish utility bill data	DOE continues to consider ways of doing this.
<b>Appraisals</b>	Push Congress to pass the SAVE Act	DOE Zero Energy Ready Home staff is not allowed to lobby Congress for specific policy changes.

## Appendix B: DOE Actions in Response to Second Leading Builder Roundtable Feedback

Feedback Category	Builder Feedback Requesting DOE Actions	DOE Progress
<b>Technologies and Standards</b>	Establish a means to share or disseminate information on efficient products/technologies	Made lessons-learned a key topic at third Builder Roundtable. New LinkedIn group can also address this topic
	Create or share industry guidance on acceptable temperature and relative humidity range for consumers	Worked with specific builders who had questions on relative humidity and temperature stratification across floors. Also hosted multiple technical webinars on topics including high performance HVAC design, and ventilation design.
<b>Mortgage Leadership</b>	Work with banks to establish preferred terms in mortgages for ZERHs aligned with lower risk	DOE Zero Energy Ready Home launched the Lender Partnership that can be used with all homes certified compliant with Zero Energy Ready Home, ENERGY STAR, and PHIUS Passive House. For certified homes, lender partners are committed to providing a 'Green Appraiser' from the Appraisal Institute list and passing along a completed 'Green Appraisal Addendum Form' provided by the builder to the 'Green Appraiser'.
	Facilitate use of Green Appraisal Addendum Form with sales contract	
	Enhance DOE cooperation with HUD and White House on appraisal and lending processes	DOE continues to look for opportunities.
<b>Education and Outreach</b>	Increase communication on sales and other training opportunities	Frequent Newsletters on Training Opportunities Held multiple webinars and classroom trainings on sales process
	Create a Housing Industry blog or online forum for ZERH builders	Launched DOE Zero Energy Ready Home LinkedIn Group
	Develop education for Residential Plan Designers <ul style="list-style-type: none"> <li>Create Building Science certification for architects/designers</li> <li>Leverage Passive House Consultant training</li> </ul>	DOE has developed Guidelines for Building Science Education that establish core competency requirements for over 30 workforce classifications including architects/designers. This resource will be further developed in 2016. DOE also continues to work with PHIUS to include ZERH in their program requirements and training.
<b>Branding and Messaging</b>	Write a press release on the roundtable, listing attendees	Roundtable is an internal process to benefit our Zero Energy Ready Home partners and not well-suited for a press release. However, we do publically promote builder recognition such as Housing Innovation Awards. Roundtable participants can also reference this summary report to highlight their participation.
	Create messaging content for builders, including more performance metrics	Created Drop-in Messaging resource – pre-approved quotes applicable to DOE ZERH builders and homes that can be used by partners for outreach and marketing
	Increase DOE messaging and awareness to consumers	Created and launched to DOE Zero Energy Ready Home Tour of Zero – a consumer-facing portal which allows access to pictures, floor plans, homeowner testimonials and other details of built and certified DOE Zero Energy Ready Homes
	Create education materials for consumers on how to live in ZER Homes	Created the DOE Zero Energy Ready Home Homeowner Manual which explains the core values of the program in a consumer-friendly way, while offering tips and explanations of why their home is different and how to interact with it.
<b>Improvements for Next Roundtable</b>	Dedicate the next meeting to solve predetermined issues from polling group of builders	DOE is considering using this approach for the next Roundtable. The topics for the Third Roundtable were driven by issues and questions third Roundtable focused on identifying partners issues that could be addressed in later meetings.
	Plan more time for discussion and less on presentations	Formatted the Third Leading Builder Roundtable completely around facilitated discussion.

## Appendix C: DOE Actions in Response to First Production Builder Roundtable Feedback

Feedback Category	Builder Feedback Requesting DOE Actions	DOE Progress
<b>Independent Verification</b>	Develop certification that will be trusted more than builder marketing efforts	DOE will continue leveraging a consistent message from sponsors and HERS raters that DOE and the label represent a trusted voice of authority.
	Conduct independent cost and performance estimates on DOE Challenge Homes	DOE has developed Zero Energy Ready Home Cost and Savings performance estimates and posted them on the ZERH website. DOE will continue developing aggregated savings impacts and conversions to other health and economic impacts.
	Promote the DOE Challenge Home label to provide comparisons that builders could not make on their own	Based on savings estimates noted above, DOE will develop comparisons of ZERH performance to ENERGY STAR Certified Homes v3 and existing homes that builders can reference.
	Work with modeling industry to more accurately capture innovation performance	DOE will continue to work through Building America to improve the accuracy of modeling tools.
<b>Mortgage Leadership</b>	Promote banks providing preferential products for DOE Challenge Homes	DOE is coordinating with the Environmental Protection Agency (EPA) on a joint financing partnership with lenders who agree to promote the Green Appraisal process including selection of appraisers from the Certified Green Appraiser list and ensure hand-off of HERS rater completed Green Appraisal Form to the appraiser.
	Promote the use of Green Addendum for appraisals	
	Conduct outreach to real estate professionals to gain buy-in	DOE will seek a presence at real estate industry events and start a sales training program in the summer of 2014 (see below).
	Support the SAVE Act	DOE cannot lobby on behalf of any legislation but will continue to offer any technical assistance as needed.
<b>Education and Outreach</b>	Deliver sales training	The sales training curriculum is complete, and program delivery will start the summer of 2014.
	Develop a real estate professional training module	A 45-minute presentation will be developed for real estate conferences; staff will look for the best venues.
	Publish case studies and testimonials – a virtual Parade of Homes	Templates are being developed, and website design is in progress. The key to launch is getting critical mass of ZERHs certified and profiled.
	Conduct media outreach	Media outreach is a continuous effort for DOE. Staff will provide a list of all media placements on the ZERH website.
<b>Branding and Messaging</b>	Make U.S. Department of Energy more prominent in name/logo	Per guidance from builders, DOE staff immediately secured a name change from DOE Challenge Home to the DOE Zero Energy Ready Home with a revised logo. Once the brand consultant has provided the final graphics, there was a formal announcement and a post on the website.
	Include "Zero Energy" or "Zero Energy Ready" as part of the program name	See note above.
	Solidify the Zero Energy Ready definition	DOE will continue participating in the Net-Zero Energy coalition to secure a definition with all stakeholders.
	Expand DOE Challenge Homes to gut retrofit projects	This is already possible now that the EPA has made accommodations for ENERGY STAR Certified Homes, v3. That said, gut rehabs will always be a heavier lift.
<b>Building America</b>	Help create opportunities to work on research projects with the world-class experts from Building America	DOE staff has informed Building America management that teams should consider top ZERH builders for potential projects. Builders should notify Sam Rashkin if they are not interested so he can remove them from the list before it is submitted.

*buildingamerica.gov*

*buildings.energy.gov/zero*

U.S. DEPARTMENT OF  
**ENERGY** | Energy Efficiency &  
Renewable Energy

DOE/EE – 1168 • November 2015