

DOE Zero Energy Ready Home

Third Leading Rater Roundtable Summary

April 2018



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DOE Zero Energy Ready Home
Third Leading Builder Roundtable Summary

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Orlando, Florida

Prepared for

DOE Zero Energy Ready Home Program

Prepared by

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

Sam Bowles, Newport Partners, LLC

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1 Roundtable Meeting Information

1.1 Participants

- Dave Bell, TopBuild Home Services
- Jeremiah Ellis, DuctTesters, Inc.
- Les Lazareck, Home Energy Connection
- Matt Wahl, Energy Rating Service
- Robert Pegues, US-Ecologic/TexEnergy
- Daran Wastchak, DR Wastchak
- Phil Anderson, Center for Energy & Environment
- Tony Lisanti, Integral Building & Design
- Brad Townsend ,BASF
- Tom Patton, Fox Blocks ICF
- Dave Horton, Sol Design & Construction
- Patrick Gillis, Home Audit Technologies LLC
- Juanita Ellian, River City Wood Working
- Gary Carmack, 15 Lightyears
- Jeremy Gary, Calcs-Plus
- Bijam Khosraviani, A9Green
- Peter Harding, Home Energy Technologies
- Brent Thumma, Building Efficiency Resources
- Evan Auld, ICF
- Harry Misuriello, ACEEE
- Jay Murdoch, Owens Corning
- Piet Opperman, All Star Energy
- David Goulding, Ensign Building Solutions
- Jim Meyers, SWEEP

1.2 Zero Energy Ready Home Staff

- Sam Rashkin, DOE
- Joe Nebbia, Newport Partners, LLC
- Jamie Lyons, Newport Partners, LLC
- Sam Bowles, Newport Partners, LLC

1.3 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 gathered and shared lessons-learned and key challenges moving the housing industry forward 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 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

1.5 Roundtable Agenda

Agenda		
Time	What	Who/How
10:30 – 11:15 am	Meeting Review/Agenda /Introductions Biggest Changes to the HERS Industry	Sam Rashkin Around the Room
11:15 – 12:00 pm	Lessons Learned with the Zero Energy Ready Home Program <ul style="list-style-type: none"> • List all lessons learned • Sort/Prioritize top 3 lessons learned 	Cards/Sorting N/3
Noon – 12:30 pm	Lunch	
12:30 – 1:00 pm	Opportunity to Upserve 1,000s of home builders <ul style="list-style-type: none"> • 8,000+ Zero Energy Homes (NSEC Survey) • 1,000s 100% ENERGY STAR and Indoor airPLUS Homes • 1,000s ENERGY STAR Certified Homes <u>≤</u> HERS 60 	Sam Rashkin
1:00-1:30	Key Builder Objections Moving to ZERH <ul style="list-style-type: none"> • List all objections • Sort/Prioritize top 3 objections 	Cards/Sorting N/3
1:30 – 2:15 pm	What Changes Can Motivate Builders? <ul style="list-style-type: none"> • List all opportunities • Sort/Prioritize top 3 opportunities 	Cards/Sorting N/3
2:15 – 2:45 pm	What can DOE do better supporting HERS raters with ZERH?	Brainstorm
2:45 – 3:00 pm	Wrap-Up/Summary	Sam Rashkin, +/-

2 Introduction

The U.S. Department of Energy (DOE) Zero Energy Ready Home (ZERH) program holds three roundtable meetings each year to share lessons-learned and develop high-priority program actions. Each meeting targets one of the following three key partners: **Innovation Partners**, **Builder Partners**, and **Verifier Partners**.

These partners are the core of the ZERH supply chain (see graphic below) that brings our product, the ZERH voluntary label, to market. The six key parts of this supply chain are as follows:

- **Product Supplier:** The U.S. Department of Energy provides the ZERH voluntary label that distinguishes high-performance homes so energy efficient, they can offset all or most annual energy consumption with renewable energy.
- **Distribution Network:** High-performance home product manufacturers and associations (Innovation Partners) provide business to consumer (B-C) solutions promoting the value of ZERH.
- **Sales Force:** Home Energy Rating System (HERS) raters (Verifier Partners) engage builders to participate in the ZERH program and certify their homes are compliant with program requirements.
- **Core Customers:** Builders who construct single- and multi-family Zero Energy Ready Homes (Builder Partners) are our critical core customer responsible for putting our product *'on the shelf'* for the U.S. homebuyer.
- **End Customers:** Homebuyers who purchase our product, Zero Energy Ready Homes, are the end customer who benefit from a superior homeowner experience.
- **Transaction Process:** There are an array of key players involved in the purchase of homes (e.g., lenders, appraisers, and insurers). The challenge is getting them to recognize the added value of Zero Energy Ready Home and then appropriately integrate that value into their services.



Figure: Zero Energy Ready Home Supply Chain

DOE held an incredibly productive roundtable meeting with an outstanding group of Verifier Partners at the RESNET Annual Conference in February, 2018. We asked a packed room of participating HERS raters to honestly tell us what they think are the difficult challenges moving ZERH to mainstream builders. We can confidently say they enthusiastically honored that request and gave us great feedback. First, they shared insights regarding the most significant changes to the HERS industry the last three years. That discussion resulted in a great compilation of rating developments that have had a profound impact on the industry. Then they provided important details about what have been the key technical and marketing lessons promoting and verifying ZERH. After a short presentation about the compelling business case for ZERH from the DOE perspective, the raters didn't hold back sharing the critical challenges bringing home builders on board. The participating raters then brainstormed an impressive list of readily achievable actions to address these challenges. Finally, the raters identified the most critical actions DOE could take to best support raters' efforts engaging builders to construct and label homes ZERH.

From beginning to end the discussion was honest, constructive, and actionable. You couldn't ask more from a group of meeting participants. Raters are truly a special breed of professionals and hopefully your appetite has been whetted to read this final report including all of the details and recommendations. Zero is the future and our partners are the key to making it happen.

3 Biggest Changes to the HERS Industry

As an exercise to kick off the meeting, participants were asked to introduce themselves, their company, and what they felt was the biggest "change, challenge, or opportunity" impacting the HERS industry in recent years. Responses covered a variety of topics, but some central themes were identified. A good number of participants discussed a significant shift to multifamily building and the impact that would have on the rating industry. This includes the need for increased training and education for HERS raters on multifamily projects. Topics related to codes and standards was another popular theme including the increased rigor of codes. Some responders were concerned this has made them more complex and possibly diminished the value of above code programs. Additionally, there was concern over issues that many had experienced with rating software and keeping up with the ever changing and advanced technology, specifically the more widespread use of PV.

Many of the raters also discussed the state of the rating industry in general. There is a rising increase in the use and awareness of HERS scores across various stakeholder groups (consumers, utilities, etc.). As the awareness grows, the perception that the rater is an expert in the field results in added responsibility and liability. Many also raised concerns about the relatively low expertise for the rating industry. Specifically, while there may be an acceptable amount of "raters," there was concern about an adequate supply of good quality raters.

**HERS Rater Feedback:
Biggest Change in HERS Rating Industry for 2018**

Category	Change
Multifamily	<ul style="list-style-type: none"> • Significant increase in multifamily projects • Lack of multi-family training and education
Professional Skills	<ul style="list-style-type: none"> • Challenges and complexity integrating building science • Need for Manual J & D knowledge • Large variation in quality of HERS rater expertise • Need to apply holistic approach to building assessments
Codes and Standards	<ul style="list-style-type: none"> • Shift to ANSI standards with greater complexity • Emphasis on code compliance skills for HERS raters • ANSI 301 in 2018 IECC • Less above code program value with more rigorous codes
Rating Business	<ul style="list-style-type: none"> • \$ per HERS Index Point as a key builder metric • Greater selection of raters • Greater specialization opportunities • Incentive programs removing rater motivation • Utility shift to HERS metric • Increased responsibility and liability • Guaranteed energy efficiency as a service • State politics
Market Awareness	<ul style="list-style-type: none"> • Public awareness of HERS • Perception of rater expertise • MLS interest in HERS scores
Software & Technology	<ul style="list-style-type: none"> • Software inconsistency • Software accuracy in high-performance • Business software and technology • PV differentiator

4 Lessons Learned with ZERH

One of the most interesting and influential parts of every roundtable meeting is when the participants go around the room sharing lessons learned from their experience working with the ZERH program. This allows the participants to hear directly from their peers while offering DOE a chance to understand potential obstacles and how to allocate resources to best support our partners. While some identified cost challenges meeting the specifications, these seemed to be relatively minor learning curve issues that could be easily corrected. The majority of the topics identified related to the lack of industry knowledge and education specifically with ZERH, as well as selling builders on the value of the program.

Many raters in the room indicated there was a lack of basic understanding of the requirements of the ZERH program amongst builders and sub-contractors. Many even claimed that they themselves lack knowledge on the program. The more education and training that is available for all parties (builders, subs, raters, architects, sales teams, etc.) the better. Subcontractors were identified as the group that most needed education because getting them up to speed can take a significant amount of (unpaid) time.

Convincing builders of the value in the program was another popular discussion topic in this section of the meeting. Raters have a difficulty explaining how the added value is worth the added cost when builders claim they can't sell ZERH and that consumers don't demand it. Being able to communicate to both homeowners and builders the energy and non-energy benefits of a ZERH certified home is a challenge that all raters face. Lastly, participants agreed that if a builder doesn't have the desire to build a high-performance home, then they simply are not going to be interested in the program.

**HERS Rater Feedback:
Lessons Learned with ZERH**

Category	Lessons Learned
Value to Builder	<ul style="list-style-type: none"> • Convincing builders of the benefit is not easy • Builder feedback that they can't sell ZERH • Challenge translating homeowner benefits and builder benefits • If the builder does not have the desire to build a better house, it won't happen • Difficulty getting Builders to sign up for ZERH
Industry Education & Knowledge	<ul style="list-style-type: none"> • Builders generally do not read materials unless the rater sets an upfront expectation • Personal lack of knowledge (Rater) • Wrong assumption that builder has a basic level of knowledge regarding energy code & MFP's installation instruction • Ensuring complete understanding of underlying details required for ZERH certification • There can never be enough training (trades, builders, sales team) • Amount of time it takes to educate the team as well as subcontractors <ul style="list-style-type: none"> – Enormous amount of unpaid time • Challenge getting subcontractors up to speed on requirements and then to pull it off consistently • Lack of competency of subs and architects
Cost	<ul style="list-style-type: none"> • Finding initial cost reductions in construction and materials • First cost not as great as anticipated
Specs & Technical Challenges	<ul style="list-style-type: none"> • A single line item in ENERGY STAR or IAP can obstruct certification ("poison pill") • Indoor Air Plus- creates trouble with certain items • Exterior Wall Insulation • Hot water distribution implementation
Marketing & Awareness	<ul style="list-style-type: none"> • "Zero" is exciting!

5 Key Builder Objections Moving to ZERH

Next, participants were asked what they had experienced to be the key builder objections moving to ZERH. Among the variety of items identified, a majority fit into three main categories that have impeded certification: marketing and awareness, builder perception and education, and technical issues.

With regards to program marketing and awareness, there was an overall sense that recognition is lacking for both the program and label. On the buyer side, it was felt that they don't understand the difference in quality with a home certified to ZERH. Most buyers are more interested in countertops than the efficiency and difficult to understand quality construction details of their home. Participants also said that the "DOE" needs to be more prominent in the label and consumer facing materials to have more of an impact.

On the builder side, the most important issue was a general lack of understanding of the program requirements from the earliest design phase. This understanding not only needs to be improved through builder education, but all sub-contractors need to be educated how a high-performance home operates differently because of its advanced enclosures and systems and how this impacts their roles. Additionally, several participants indicated that the ongoing housing market recovery since the down-turn has builders just trying to put up as many homes as possible rather than worry about differentiating themselves with above code programs.

Lastly, there were issues with some of the ZERH specifications and technical requirements. Many participants indicated ventilation is an ongoing issue, particularly in hot-humid climates. Interestingly, the group discussed the big difference struggling with technical requirements between production versus non-production builders. A non-production builder can adjust the design much easier than a builder who has a lot of team members out in the field building homes from model plans. Finding certified HVAC contractors remains an issue for many as well.

**HERS Rater Feedback:
Key Builder Objections Moving to ZERH**

Category	Key Objections
Marketing & Consumer Awareness	<ul style="list-style-type: none"> • Make “DOE” more prominent • General lack of awareness/knowledge • Increase realtor education so they can promote/sell the program • Buyer recognition for label <ul style="list-style-type: none"> – Leverage other programs more effectively • Buyers don’t care • Buyers more interested in countertops • Get better mortgage rate for buyers
Builder Perception	<ul style="list-style-type: none"> • Recovering market conditions create apathy/short term tunnel vision • Fear of learning another new program • Lack of understanding
Education	<ul style="list-style-type: none"> • Organizing all trades to work together • Lack of skilled or experienced labor • Homeowner behavior to ensure persistent performance • Lack of awareness about program requirements at design phase
Cost	<ul style="list-style-type: none"> • First cost and complexity
Technical	<ul style="list-style-type: none"> • Ventilation • Hot water • HVAC contractor <ul style="list-style-type: none"> – Non-production builders ok but won’t move market • Production builder issues <ul style="list-style-type: none"> – HERS – IAP materials – Ducts in conditioned space – Domestic hot water delivery (multifamily) – Unconditioned basements

6 What Actions Can Motivate Builders

After discussing the changes impacting the HERS rating industry, lessons learned certifying ZERH, and the builder objections to ZERH program participation, the next logical question was, what WOULD motivate builders? Much of the conversation centered on objections raised earlier in the meeting such as improved marketing, promotion, and education. Creating more awareness through various channels such as expanding the ZERH social media and online presence, developing a consumer website, marketing the non-energy benefits, and leveraging affiliate relationships and the DOE label more was a common theme amongst the raters in the room. Providing more educational resources such as webinars, videos, and more classroom trainings for a variety of stakeholder groups would help everyone best understand the program, not only from a technical standpoint, but also learn ways in which to communicate the value of a Zero Energy Ready Home.

As one would expect, there was consensus amongst participants that incentives for building ZERH would help motivate builders to move that way. Incentives from both state and local government as well as utility programs would help push builders to participate in the program more. Additionally, competitions such as the Housing Innovation Awards and the Solar Decathlon were identified as ways to get more builders involved. Building on these points, several participants said that peer pressure from competitors and having a market leader involved in the program would make more builders feel the need to participate in order to stay competitive.

**HERS Rater Feedback:
What Actions Can Motivate Builders?**

Category	Actions
Incentives	<ul style="list-style-type: none"> • Financial Incentives • Competitions (Housing Innovation Awards, Solar Decathlon) • Utility involvement- don't use the term ZERO
Education	<ul style="list-style-type: none"> • Basic builder focused webinars- building associations, utilities, cities • Subcontractors/trade education • Training webinars for builders and subs • Education for raters • More Sam Rashkin videos!
Marketing & Promotion	<ul style="list-style-type: none"> • Awareness and upselling- understand the value and being able to communicate it effectively makes it easy to sell • Leverage more affiliate relationships (ENERGY STAR, LEED, Utility Programs) • More DOE! • Market/communicate the benefits beyond energy <ul style="list-style-type: none"> – Building science fundamentals – Health and durability • Expand social media and online presence/ consumer website <ul style="list-style-type: none"> – All partners tied in together
Products & Manufacturers	<ul style="list-style-type: none"> • Product packages <ul style="list-style-type: none"> – Alignment with other manufacturers of products and systems to promote packages that would help get to ZERO • Case studies for options/examples of how to do it <ul style="list-style-type: none"> – Cost options and product options
Competition	<ul style="list-style-type: none"> • Peer pressure • Market leader to drive competition

7 What Can DOE do to Better Support HERS Raters with ZERH?

Wrapping up the meeting, participants were asked to reflect on the various discussions throughout the day and identify action items for DOE to better support HERS raters with respect to the ZERH program. Building on themes developed throughout the course of the day, the idea of incentives and getting involvement at the state and local level, as well as through utility programs was one area that raters felt DOE should focus efforts. Ideas such as making ZERH and other above code programs as alternatives to code compliance and tying these certifications to utility incentive programs would help get more builders involved. Getting ZERH into the Qualified Action Plans (QAPs) for various states is an approach DOE has already begun to take. Engaging cities about their low-income housing programs and how ZERH could fit in was another approach mentioned by participants.

Increased marketing and promotion is always a high priority item during this section of ZERH roundtable meetings. More messaging on the added benefits of ZERH non-energy benefits such as health, air quality, and maintenance is critical. Highlighting ZERH builders in markets where the program has market leaders will make competitors look more seriously at the program. Pushing the brand and the “DOE” part of the label/logo was a popular item amongst the group. Leveraging the DOE brand should be a major focus and ensuring that all partners are promoting with logos and links on various materials, websites, and social media channels is essential for raising awareness of ZERH amongst both builders and consumers.

Lastly, education and resources was a common theme throughout the day and participants felt that the more the better. Not only educating everyone involved in the process of building a home (builders, subcontractors, architects, raters, etc.), but also educating decision makers from state and local governments and utility providers will help get ZERH into the mix with their programs. Regarding training for the building industry, topics that cover regional and climate specific issues such as ventilation in hot-humid climates, advanced technology, building systems and the latest research from Building America, as well as education for occupants on both why they should want these homes and how to live in them would all be valuable. Some participants also indicated that having requirements and/or certifications for taking ZERH focused trainings and webinars should be an approach taken into consideration by DOE.

**HERS Rater Feedback:
What Can DOE do to Better Support HERS Raters with ZERH?**

Category	DOE Actions
City/Code/ Utility Involvement	<ul style="list-style-type: none"> • Make ZERH an alternative to code compliance and utility incentive programs • Reach out to cities and utility energy efficiency decision makers to make ZERH required or rewarded • Engage cities and states to spec ZERH for low income homes of spec subdivisions • Get ZERH into QAPs
Marketing	<ul style="list-style-type: none"> • Link to indoor air quality studies • Less missed work/school • Fewer building maintenance and call backs • Tenant retention • Pump-up builders in markets where ZERH is prevalent <ul style="list-style-type: none"> – Get competitive juices flowing • Celebrity spokesperson • DOE logo presence- more DOE! • Get links to program website on all partner websites • Develop high impact content as landing page for web • More social media including Pinterest, Instagram, DOE-TV
Education	<ul style="list-style-type: none"> • Engage politicians • Educate at regional utility and financing level • Provide training via social media • Educational sessions at IBS • Training webinars customized <ul style="list-style-type: none"> – Regional specific issues – Occupant education – Material awareness – Technology advancement – Latest research – Climate specific packages • Mandatory ZERH training • Certification for ZERH Rater

Appendix A: DOE Actions in Response to Second Leading Rater Roundtable Feedback – 2017

Actions for DOE Identified by HERS Raters	DOE 2017 Actions	Grade
<p>Strategic Marketing</p> <ul style="list-style-type: none"> • 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 for both rater companies and builders • Provide raters and builders with more advanced training and education on the benefits of energy efficiency programs (training on sales to consumers) 	<ul style="list-style-type: none"> • ZERH White Board Video under development • Engaging NAHB to partner with ZERH Builder Awards • Option to provide BASC feedback available 24/7 • Invited HERS Raters to ZERH Training Seminars • New ZERH Sales Training 	B
<p>Value Proposition Data</p> <ul style="list-style-type: none"> • Regional cost data for “balance of system” – it costs more for x but save on y and z 	<ul style="list-style-type: none"> • Posted ZERH Cost Study for key climate regions more prominently on website 	B
<p>Builder Engagement</p> <ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Actively recruited builders and invited their management team to customized webinars (e.g., LendLease, Caliber, Goodall, Garbett, etc.) • Voice-of-Builder webinars • Set to offer customized webinars for targeted builders and their management teams: <ul style="list-style-type: none"> – NZEC survey builders – 100% ESfH/IAP builders – ESfH w/low HERS scores 	B+
<p>Trade Partner Engagement</p> <ul style="list-style-type: none"> • 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 e/Outreach • Best pathway for HVAC QA is with HVAC distributors • Help trades understand that the leap isn’t that huge to comply with ZERH 	<ul style="list-style-type: none"> • Invite trades to ZERH training seminars • Coordinate with ENERGY STAR Certified Homes on Quality HVAC requirements and new HERS Grading protocol • Continually add trade images, videos, content on BASC 	C

Note: Grade self-assessed by ZERH team

Appendix B: 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 logos and sticker specs available 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, its 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 meetings 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 Ready 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 many technical details as possible. The BASC points builders toward details required for DOE Zero Energy Ready Home certification. We have also continued to 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, and 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 that 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 to adequately value energy efficient and high performance components and systems in homes.

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