

RESNET Summit: Using HERS to Help Builders

EEBA High Performance Home Summit

October 10-12, 2017

Abe Kruger



Agenda/Outline

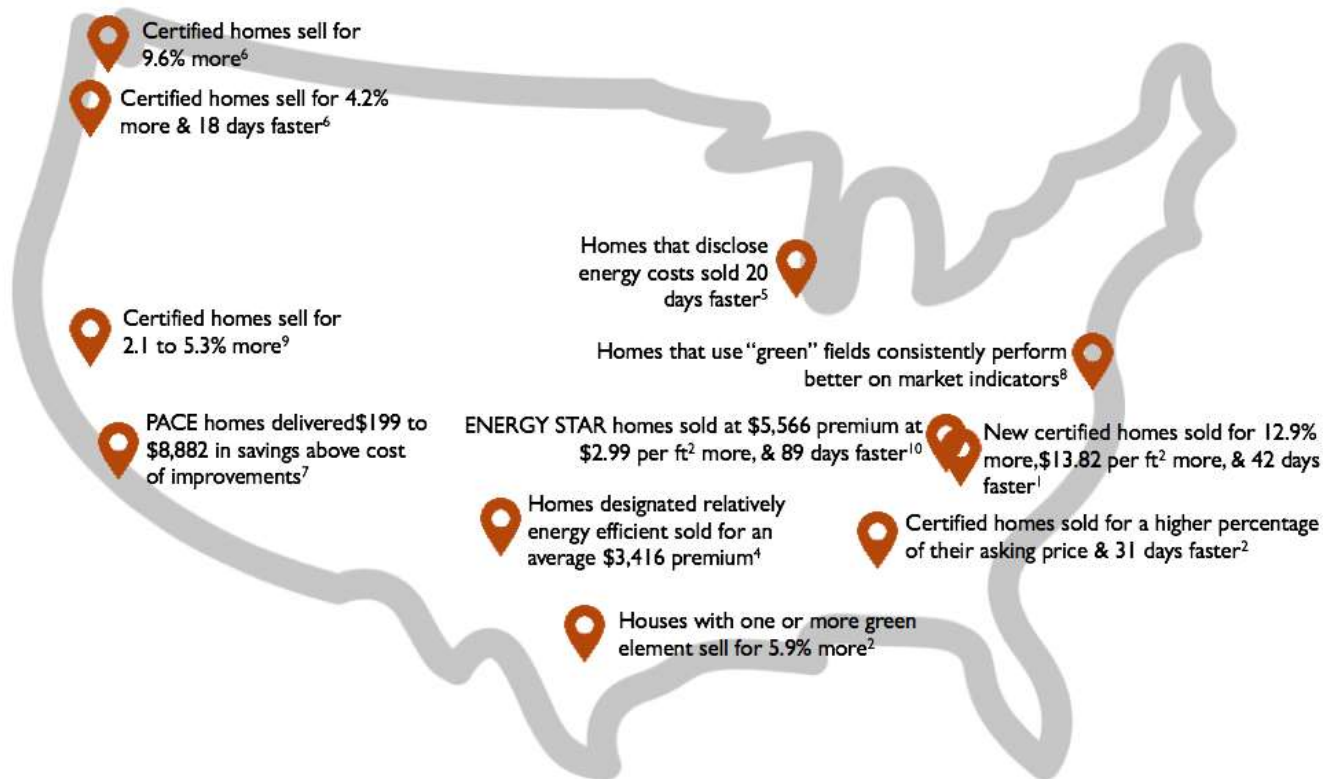
- High Performance Homes (HPH) market
- How we use HERS
- How our clients use HERS
- Q&A



Why Build Green/Energy Efficient?

- 1. Marketing benefits**
- 2. Required for financing**
- 3. Buyer wants it**
- 4. Utility incentives**
- 5. Risk mitigation**
- 6. Better way to build/true believer**

EE Homes Sell For More, Faster

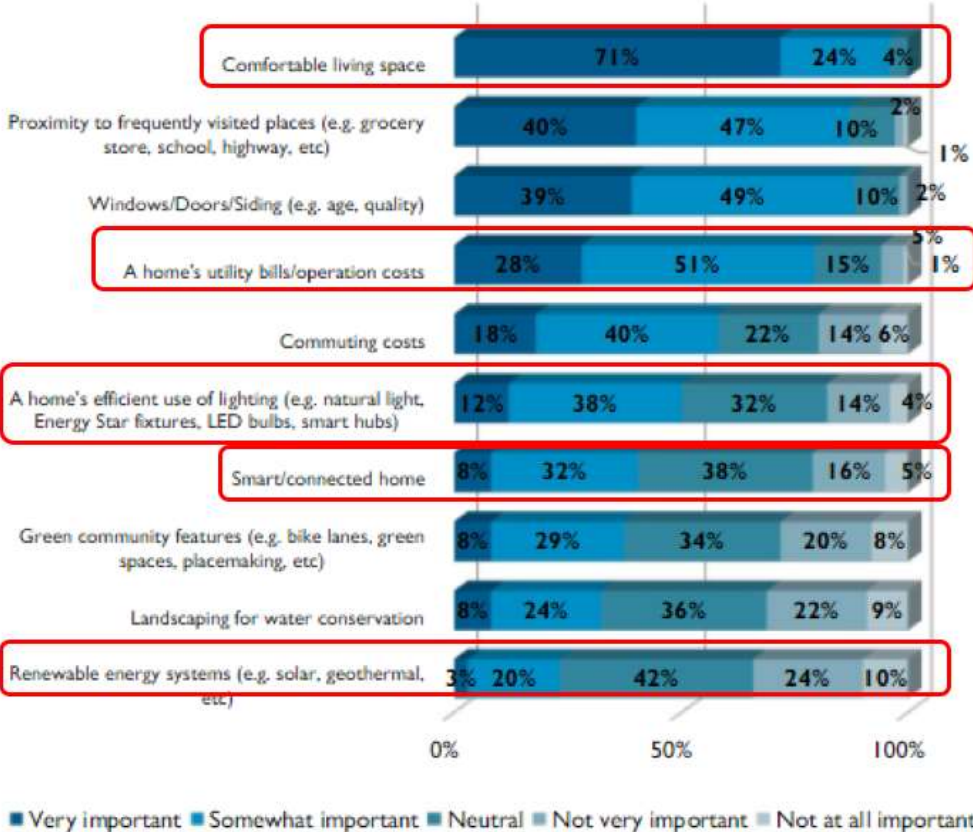


Sources: ¹Argeris, 2010; ²Cadena & Thomson, 2015; ³Carson Matthews, 2009; ⁴Corgel, Goebel, & Wade, 1982; ⁵Elevate Energy, 2015; ⁶Griffin, 2009; ⁷Goodman & Zhu, 2016; ⁸Institute for Market Transformation, 2015; ⁹Kahn & Kok, 2013; ¹⁰Pflegler et al., 2011.

*Not all studies shown have been peer reviewed.

What Do Consumers Want the Most

Importance of Home Features to Clients



Consumer Demand

1. On average, energy costs are higher than either property tax or insurance for U.S. homes at \$2,506 per year ([U.S. Census](#)).
2. Attic insulation achieves highest return on investment of all home improvement projects studied at 116.9% ([Remodeling Report](#)).
3. Energy efficient homes can improve occupant health outcomes related to asthma, hypertension, and allergies ([DOE](#)).
4. 70% of households report that EE is important ([Demand Institute](#)).
5. 84% of homebuyers said that HVAC costs are at least somewhat important factors in their home purchase (68% appliances and 67% lighting) ([NAR](#)).

Do We Have HPH Inventory?

High Performance Homes:
Benefits for Today
and Tomorrow

2 MILLION
Homes HERS-Rated for Energy Efficiency

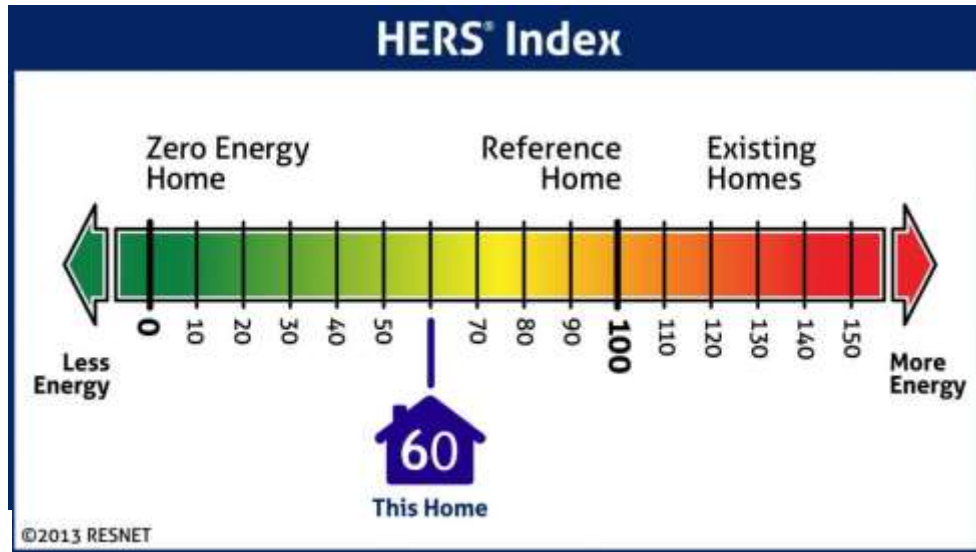
As of 2016, over **1.5 million homes** are considered High Performance Homes. These are new and existing homes that have third-party verifications* identifying energy upgrades.



Buyers need access to energy efficiency information that is credible and easy to understand.

Sellers need tools that can accurately appraise the value of improved energy performance.

Certification Programs



Home Innovation
NGBS GREEN™

Enterprise®



How We Use HERS

- Green building certification
- Utility rebates
- Green renovation loans
- Georgia QAP compliance



ENERGY STAR v3

For all single-family detached homes, townhomes, rowhomes, duplexes, triplexes, and quadplexes, calculate the Size Adjustment Factor (SAF) using the following equation:

$$SAF = [CFA_{\text{Benchmark Home}} / CFA_{\text{Home To Be Built}}]^{0.25}, \text{ not to exceed } 1.0$$

Where:

$CFA_{\text{Benchmark Home}}$ = Conditioned Floor Area of the Benchmark Home, using Exhibit 1 below

$CFA_{\text{Home to be Built}}$ = Conditioned Floor Area of the Home to be Built

Exhibit 1: Benchmark Home Size^{2,3}

Bedrooms in Home to be Built	0	1	2	3	4	5	6	7	8
Conditioned Floor Area <small>Benchmark Home</small>	1,000	1,000	1,600	2,200	2,800	3,400	4,000	4,600	5,200

Additional info:

https://www.energystar.gov/ia/partners/bldrs_lenders_raters/downloads/rev_8/ES%20HERS%20Index%20Target%20Procedure%20v36%202015-06-11_clean_508.pdf

EarthCraft



- **EarthCraft**
 - ENERGY STAR HERS Index Target



LEED for Homes



- **LEED for Homes v2009**
 - ENERGY STAR v2 qualified
 - Points for <85 Index or ASHRAE model
- **LEED for Homes v4**
 - ENERGY STAR v3 qualified
 - Points for <70 Index or ASHRAE model



Georgia Power Rebates



- **HEIP**
 - 25% Energy Efficiency Improvement (Beacon)
- **EarthCents**
 - HERS 74 for SF and HERS 77 for MF
 - 15% Better than ASHRAE 90.1- 2007
 - \$500 for SF and \$150/unit for MF

Green Loans

- **Fannie Mae**
 - Min 20% reduction in energy or water
- **Freddie Mac**
 - Min 15% reduction in energy or water



Freddie Mac Green Assessment

- **Built in 1988 in Atlanta, GA**
- **Goal is 15% savings**

Energy Conservation Measure	QTY	Estimated Total Cost	Annual Total Savings (kWh)	Annual Total Savings	Estimated Payback	Electric Reduction
14 SEER AC	764	\$581,404	640,996	\$76,920	7.6 Years	9.6%
Attic Insulation	304	\$638,400	90,288	\$10,835	58.9 Years	1.4%
Refrigerator	442	\$260,780	344,539	\$41,345	6.3 Years	5.1%
Dishwasher	442	\$123,318	105,417	\$12,650	9.7 Years	1.6%
22W CFL	15,640	\$33,782	695,520	\$83,462	< 1 Year	10.4%

Fannie Mae Green Assessment

- Built in 1950s in Atlanta, GA
- Goal is 20% savings

ECM Item No.	Energy Conservation Measure Name	Annual Electricity Savings	Annual Natural Gas Savings	Projected Whole Property Source Energy Savings (%)
		kWh	Therms Gas	
1	Replace windows (U-0.32/SHGC-0.27)	43,179	11,003	6.7%
2	Install attic insulation (\leq R-38)	6,618	3,246	1.7%
3	Replace water heaters (0.95 EF)	(447,534)	27,623	-7.8%
4	Replace in-unit lighting (100% CFL or LED)	185,442	-	8.2%
5	Replace HVAC (14 SEER/8.2 HSPF) & repair ductwork	(365,765)	61,926	10.7%
6	Install WaterSense showerhead (\leq 2.0 GPM) & lav faucet (\leq 1.5 GPM)	-	1,145	0.5%
7	Install WaterSense toilet (\leq 1.28 GPF)	-	-	0.0%
8	Install ENERGY STAR Refrigerator	67,932	-	3.0%
Totals		(510,128)	104,943	23.0%

Q&A

- Questions
- Discussion

