

# DATA, DATA EVERYWHERE: WHAT KIND OF DATA IS OUT THERE AND HOW IS IT TRANSFORMING THE REAL ESTATE MARKET?

*Ed Carley, NASEO, moderator*  
*Madeline Salzman, U.S. DOE*  
*Asa Foss, USGBC*  
*Ryan Meres, RESNET*  
*Robin LeBaron, Pearl Certification*



# Home Energy Labeling:

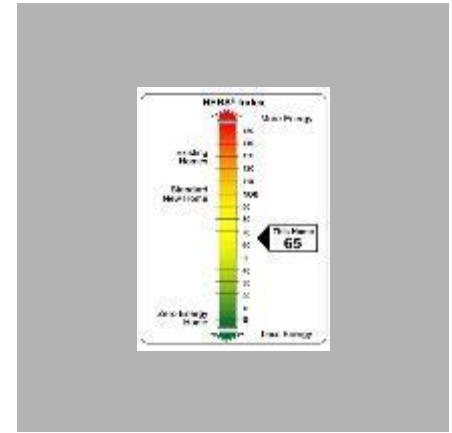
A Guide for State and Local Governments

Created by the EMPRESS Team



The EMPRESS (Energy Metrics to Advance Residential Energy Scorecards in States) project is a State Energy Office-led 2017-2020 project supported by funding from the U.S. Department of Energy State Energy Program and private sector partners. The project is focused on enhancing large-scale residential home energy labeling and harmonizing existing energy scoring programs to better support the market valuation of energy efficient homes.

Project Partners include: the Rhode Island Office of Energy Resources, the Massachusetts Department of Energy Resources, the Missouri Division of Energy, the Arkansas Energy Office, the Oregon Department of Energy, the National Association of State Energy Officials, Earth Advantage, Energy Futures Group, and Vermont Energy Investment Corporation.



Data, Data Everywhere! What kind of data is out there, and how is it transforming the real estate market?



December 7, 2019  
Providence, RI



## Presenters

- *Moderator: Ed Carley, NASEO*
- *Madeline Salzman, U.S. DOE*
- *Asa Foss, USGBC*
- *Ryan Meres, RESNET*
- *Robin LeBaron, Pearl Certification*
- *Katrin Klingenberg, Passive House Institute US*



## Energy Metrics to Promote Residential Energy Scorecards in States (EMPRESS)

- EMPRESS is a State Energy Program funded grant
- GOALS:
  1. Developed recommendations for consistent elements to be included in home energy labeling initiatives
    - E.g.- GHG impact, Mbtu/year, total energy cost, date of issue, etc.
  2. Encourage Home Energy Score (HES) and Energy Rating Index software providers to use a single energy modeling engine (Energy Plus) to promote consistency and reduce confusion



# How can the EMPRESS project help me?

- The EMPRESS team has compiled:
  - Background information on Home Energy Score and Home Energy Rating System, including cost
  - Sample legislation and ordinances
  - Pros and cons of voluntary and mandatory approaches
  - Recommendations for elements that should be on all labels
  - Examples of labels used in other jurisdictions
  - Workforce identification and training recommendations
  - Information on working with real estate professionals
  - <http://empress.naseo.org> for more





## Resources

- EMPRESS: <http://empress.naseo.org>
- HELIX: <https://neep.org/home-energy-labeling-information-exchange-helix>
- Home Energy Information Accelerator: <https://betterbuildingsinitiative.energy.gov/accelerators/home-energy-information>





Thank you

Ed Carley

National Association of State Energy Officials

Senior Program Manager, Buildings

703-299-8800 x 119

[ecarley@naseo.org](mailto:ecarley@naseo.org)







# Home Energy Score

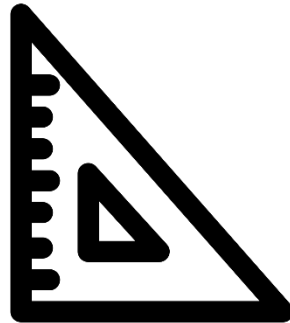
Data Everywhere Panel  
HELIX Summit 2018

# Residential Buildings Are...



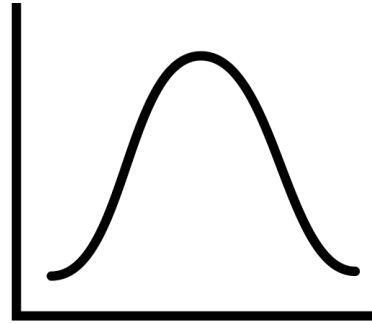
**95%**

of U.S. buildings



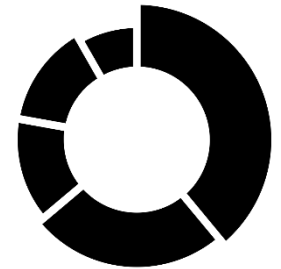
**70%**

of U.S. building  
stock square  
footage



**50%**

of peak demand  
on electricity  
grids



**21%**

of U.S. energy use

# Efficiency is Good for Residents



**Helps Reduce Costs.**  
Energy burdens average higher than both property taxes and home insurance.



**Smart Investment.**  
Efficiency features payback via energy savings over time.

## Improves Quality of Life



**Reduce environmental impact.**



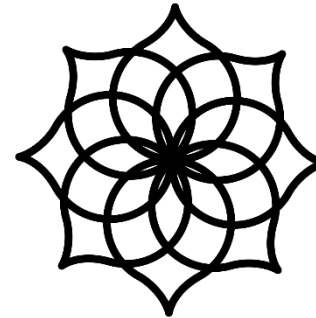
**Increased comfort.**



**Improved health outcomes.**



**Less draftiness.**



**Increased control.**



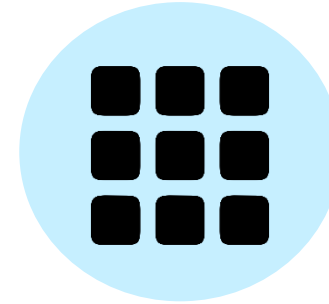
**Peace of mind.**

# Ideal World



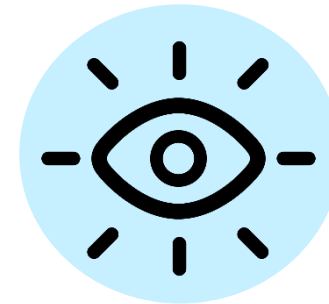
## Home Energy Use.

Homes are energy efficient, contributing to modern & livable building stock.



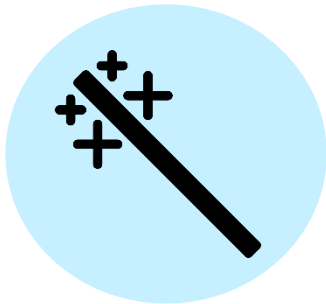
## Data Collection & Access.

Data is standardized, useful, and protects personal information.



## Data Management & Insight.

Data informs policy design, incentive packages, and goal setting.



## Efficiency Upgrade Packages.

Programs increase efficiency in targeted ways to meet energy goals & improve lives.



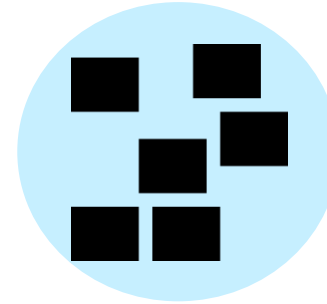
**Energy Savings!**

# \*Actual\* World



## Home Energy Use.

Probably bad and wasteful but not exactly sure why...



## Data Collection & Access.

No standard approach, all assessments are different. Do we have access?



## Data Management & Insight.

Solutions must be customized, unable to generate comparisons across users.



## Efficiency Upgrade Packages.

Impacts are difficult to measure and associated costs are high.



# Home Energy Score

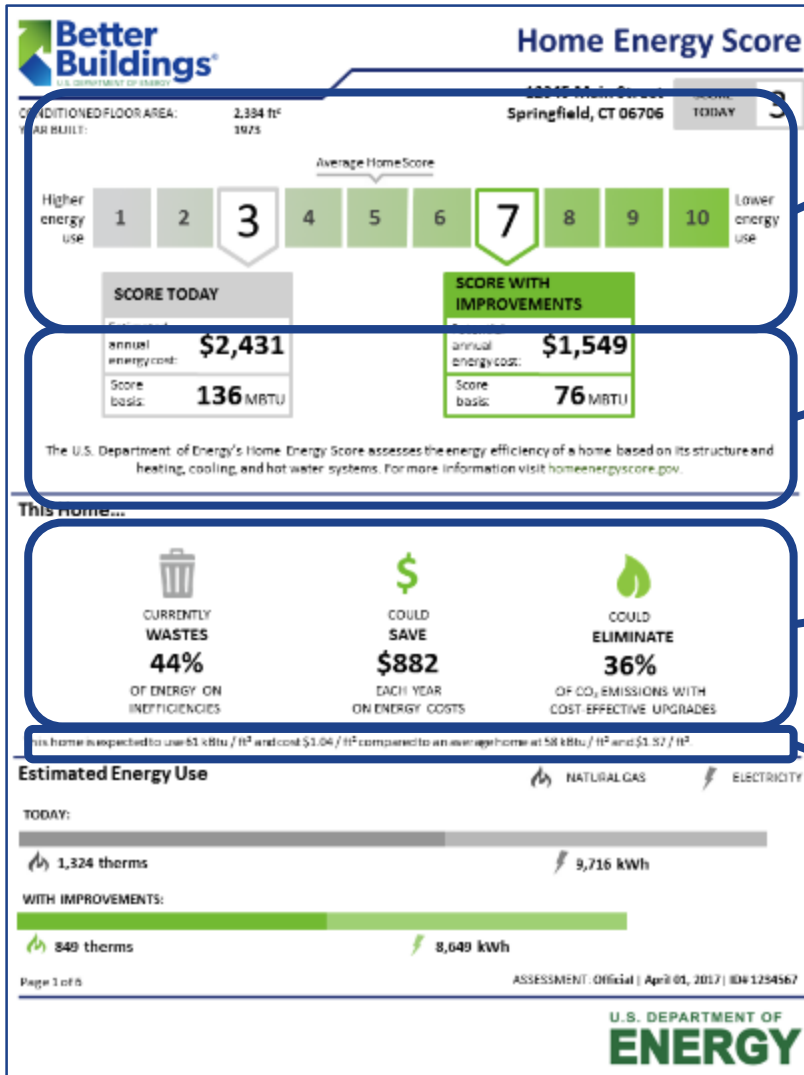
U.S. DEPARTMENT OF ENERGY  
**Home Energy Score**



## Features

- ✓ “Miles per gallon” rating for homes\*
- ✓ Scale for easy-to-understand interpretation
- ✓ Building energy model estimates annual energy use, costs, emissions
- ✓ Recommendations for cost-effective improvements
- ✓ Easily show energy features and expected costs of comp homes
- ✓ Backend tool for various home energy assessments
- ✓ Can be included in home inspections
- ✓ Useful information for consumers, Home Energy Score Partners, real estate agents, lenders, appraisers, city & state governments

# Home Energy Score Report



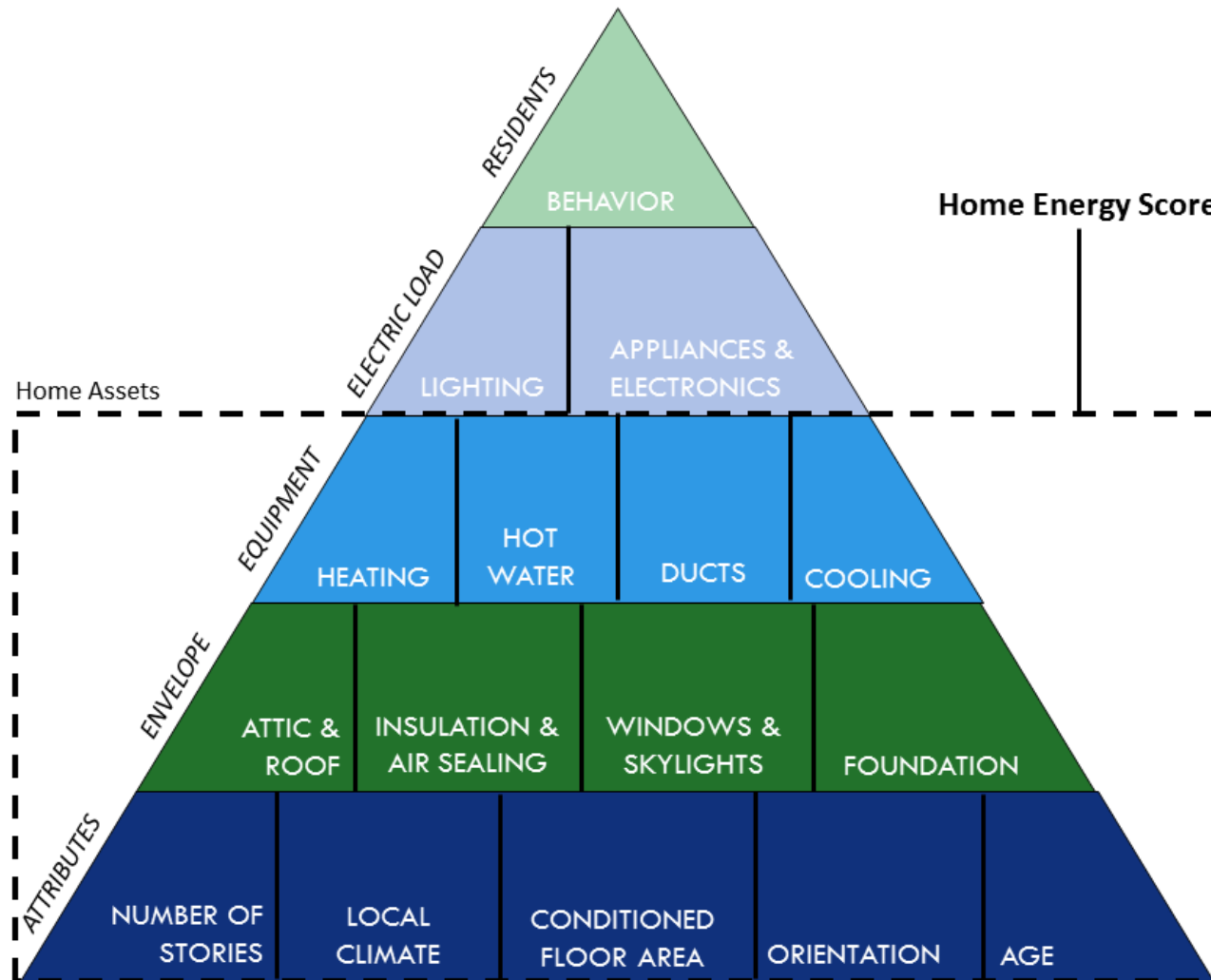
For the Consumer: Easy to understand home rating, motivation to improve and compete.

For the Lender: Comparable home energy use & cost estimates between homes, estimated savings from improvements.

For the Partner: Analysis of home's potential to help achieve energy-related goals.

For the Appraiser: Comparison of home's energy use estimate to other homes in the region.

# An Asset Rating

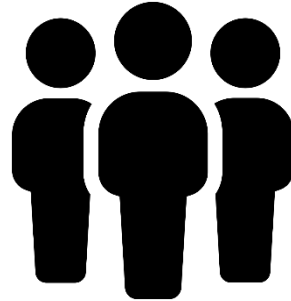




# Why Not Use Energy Bills?



**Data Privacy.** Most utility bills are considered private information, which complicates their use in real estate and financing.



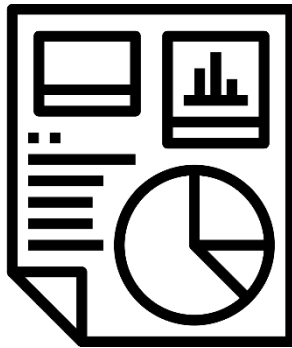
**Occupancy Variables.** Bills depend on more than just the home assets, like the number of residents and occupancy rate year-round.



**Economic Variables.** Energy use also depends on economic factors, such as energy price and resident income. These factors may not hold true for future occupants.

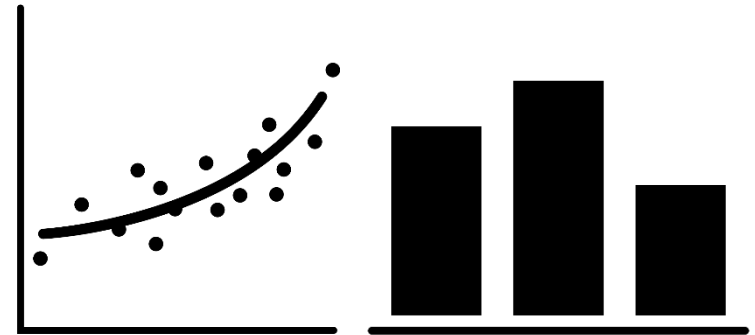
**Asset scores rate the home features themselves, leaving residents, their private data, and their preferences out of the equation.**

# Home Energy Score



**Individual reports:** Like a miles-per-gallon rating or “nutrition facts” for a home

- ✓ Estimate energy costs, recommended upgrades
- ✓ Improve energy literacy



**Data in aggregate:** Consistent home energy information to understand sector wide issues, gains, and tracking

- ✓ Target upgrades and incentives
- ✓ Track sales rate, price, premiums; influence appraisal and financing
- ✓ Analyze efficiency gains

# Data In Aggregate

Sample of 100,000+ Home Energy Scores Averages:

**4.7**

Score Today

**7.3**

Score with Improvements

Annual Savings Potential

**22%**   **\$600**   **2.0**

Energy

Energy Bills

TCO<sub>2</sub>eq

**Most Common Cost-Effective Upgrade Recommendations:**

- ✓ Home Air Sealing
- ✓ Duct Air Sealing
- ✓ Attic Insulation
- ✓ ENERGY STAR Water Heater
- ✓ ENERGY STAR Heating System
- ✓ ENERGY STAR Air Conditioner

Data Collected by

**500+**

Home Energy Score Certified Assessors™  
nationwide

# Partners & Collaborators Nationwide



# Accelerator Toolkit

## Dozens of resources that help:

- ✓ Grow the inventory of home energy information
- ✓ Use common data standards
- ✓ Integrate with real estate

<https://betterbuildingsinitiative.energy.gov/sites/default/files/attachments/HEIA%20TOOLKIT%20081318.pdf>



## Home Energy Information Accelerator: Toolkit to Bring Home Energy Data to the Real Estate Market

AUGUST 2018

U.S. DEPARTMENT OF  
**ENERGY**

# EnergyPlus Harmonization Effort

## Home Energy Score™ 3<sup>rd</sup> Party Software Providers

SnuggPro

ID Energy

Design  
Avenue

Franklin  
Energy

AJO

OptiMiser

Pearl

Energy  
Savvy

HPXML

API

Output

Home Energy Score™  
Scoring Tool

## HERS® Software Providers

Ekotrope

PSD

Wrightsoft

Pivotal

Weatherization  
Assistance Program's  
NEAT Tool

HPXML

API

Output

HPXML

API

Output

HPXML

API

Output

ANSI/RESNET 301 Energy Rating Index Ruleset / Agreed Upon Rulesets (As Applicable)

HPXML

HPXML

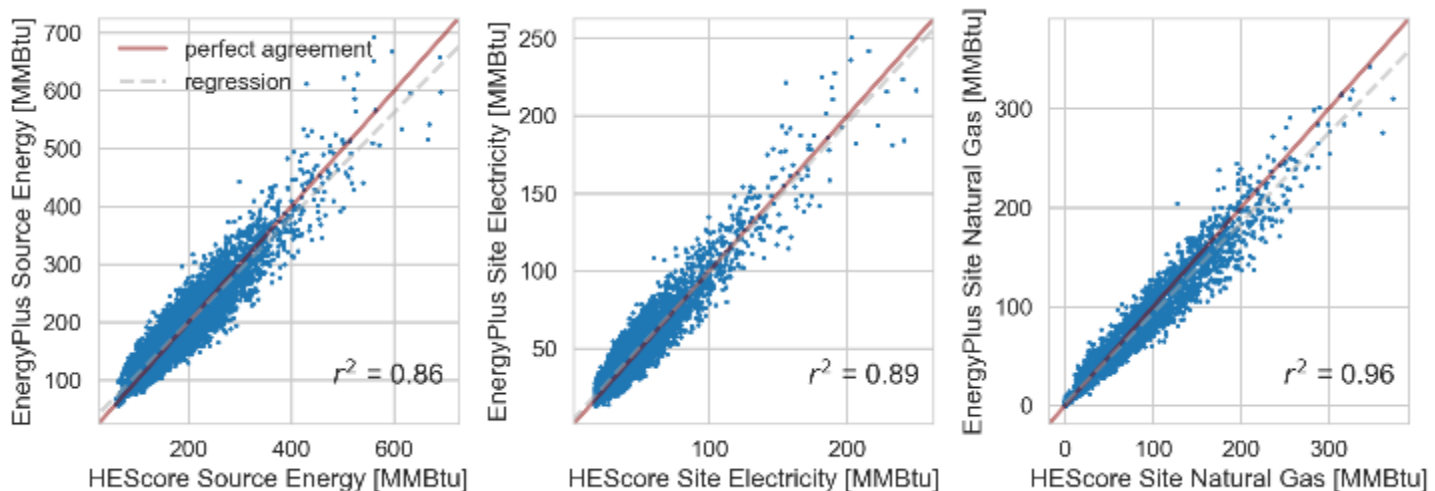
HPXML

OpenStudio/EnergyPlus Building Energy Model Simulations

# EnergyPlus Harmonization Effort

## Benefits

- ✓ Accelerates new technologies into software tools
- ✓ Increases consistency across DOE/industry programs
- ✓ Reduces developer effort to use EnergyPlus
- ✓ Lowers industry-wide costs of maintaining multiple engines
- ✓ Allows private-sector competition around innovations for user interface, business support, etc.



**Questions?**

**Madeline Salzman**

[madeline.salzman@ee.doe.gov](mailto:madeline.salzman@ee.doe.gov)

**(202) 586-2540**





# LEED

## RESIDENTIAL

# ASA FOSS

Director, Residential Technical Solutions



# Program Scope and Applicable Building Types



Single-Family Homes



High-Rise



Low-Rise Multifamily



Single-Family Production



Gut Rehab

# LEED Certifications (United States)

**350,000** units certified

**325,000** multifamily

**24,000** single family

# LEED Registrations (United States)

**775,000** units registered

**760,000** multifamily

**14,000** single family

# LEED Certifications (New England)

**52,000** units certified

**51,000** multifamily

**1,300** single family

# LEED Registrations (New England)

**215,000** units registered

**214,000** multifamily

**1,000** single family

**3.1 BILLION** SQ.  
FT.

OF COMMERCIAL  
LEED® CERTIFIED  
PROJECTS

(CUMULATIVE)



# WHAT'S THE VALUE OF LEED?

**Occupants prefer to live in a sustainable building**

**8.9% rental premium**

**Lower Interest Rates**

Fannie Mae – Green Financing Loans

Freddie Mac – Multifamily Green Advantage

# WHAT'S THE VALUE OF LEED?

**Added income of a property, adds value to the property when it's time to refinance**

ie \$100,000 in added income, at 6% capitalization rate, increases added value by \$1.6 Million

**Institutional Investors prefer to purchase LEED properties**

## SINGLE FAMILY SALES PREMIUM

North Carolina: 9.5% premium for certified properties in metro markets

Maryland: 2-5% premium for ENERGY STAR

DC: 3.5% premium for homes listed with green features

California: 9% sales premium for green certified homes

# SINGLE FAMILY SALES PREMIUM

## Meta-Analysis of Green Home Premiums

Green certified homes sell for a 4.3% premium  
(+/-) 1.0% (90% confidence levels for the means)

# WHY THE SALES PREMIUM?

## 1) Green = Quality

Improved comfort, health and quality of home and reduced maintenance

## 2) Lower utility bills

## 3) Doing the right thing (for the environmental)

# LEED PREMIUM

Texas study on RESALE price

6% premium for certified homes in general  
(primarily ENERGY STAR)

8% premium for LEED certified homes.



# GREEN BUILDING INFORMATION GATEWAY

**GBIG**

SEARCH 🔍

BUILDINGS

LEADERS



**LEED**

Search



## Special: California State Government LEED Projects



105 Buildings

Activities: 128 (27.36 Million sqft)

LEED EB 2009 (31) • LEED NC 2.2 (27) • LEED NC 2009 (23) ...

# Gomes Way

Overview Collections (0)

Save This 

## ACTIVITY SUMMARY

**LEED-HOMES v2008 Gold certified** on 09/20/2010



**77/136**  
Possible points

## LOCATION



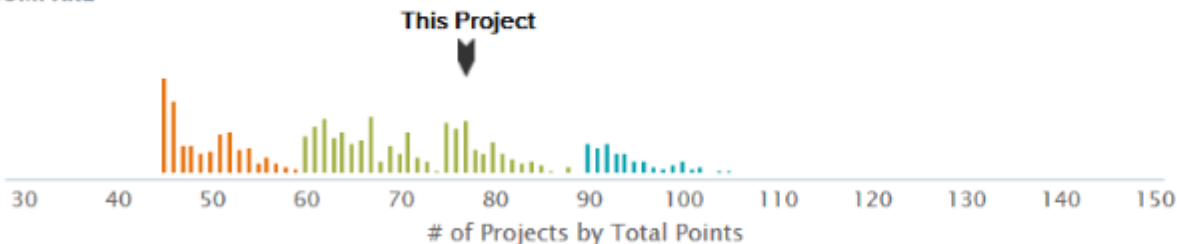
**This project is located at:**

1 Gomes Way, Harwich, MA, USA

## ACTIVITY DETAILS

<b>Activity Type</b>	LEED
<b>Space Type</b>	Single-Family Home
<b>CBSA</b>	Barnstable Town, MA Metropolitan Statistical Area
<b>USGBC Chapter</b>	Massachusetts Chapter

## COMPARE





# Data on HERS Rated Homes

HELIX Summit ~ December 7, 2018 ~  
Providence, RI

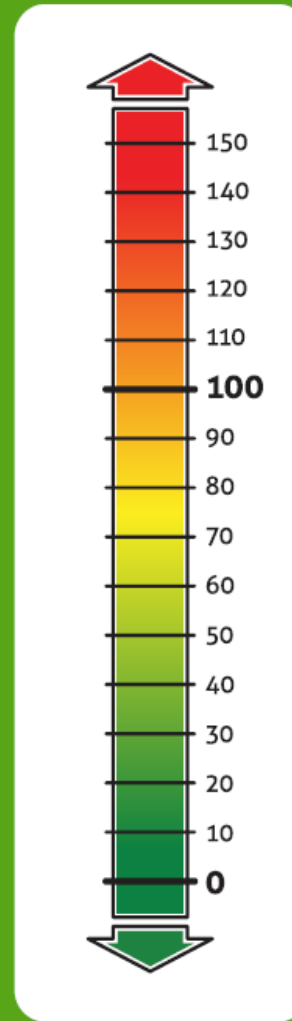
**Ryan Meres, Program  
Director  
RESNET**



# What is the HERS Index?



- ✓ The **national standard** by which a home's energy efficiency is inspected and rated.
- ✓ A typical home built to 2006 energy efficiency standards scores 100 on the HERS Index.
- ✓ A 1-Point change in the HERS Index represents a 1% change in energy use.
- ✓ A lower Index Score means a home uses less energy.
- ✓ A home with a HERS Index Score of 0 produces as much energy annually as it uses.

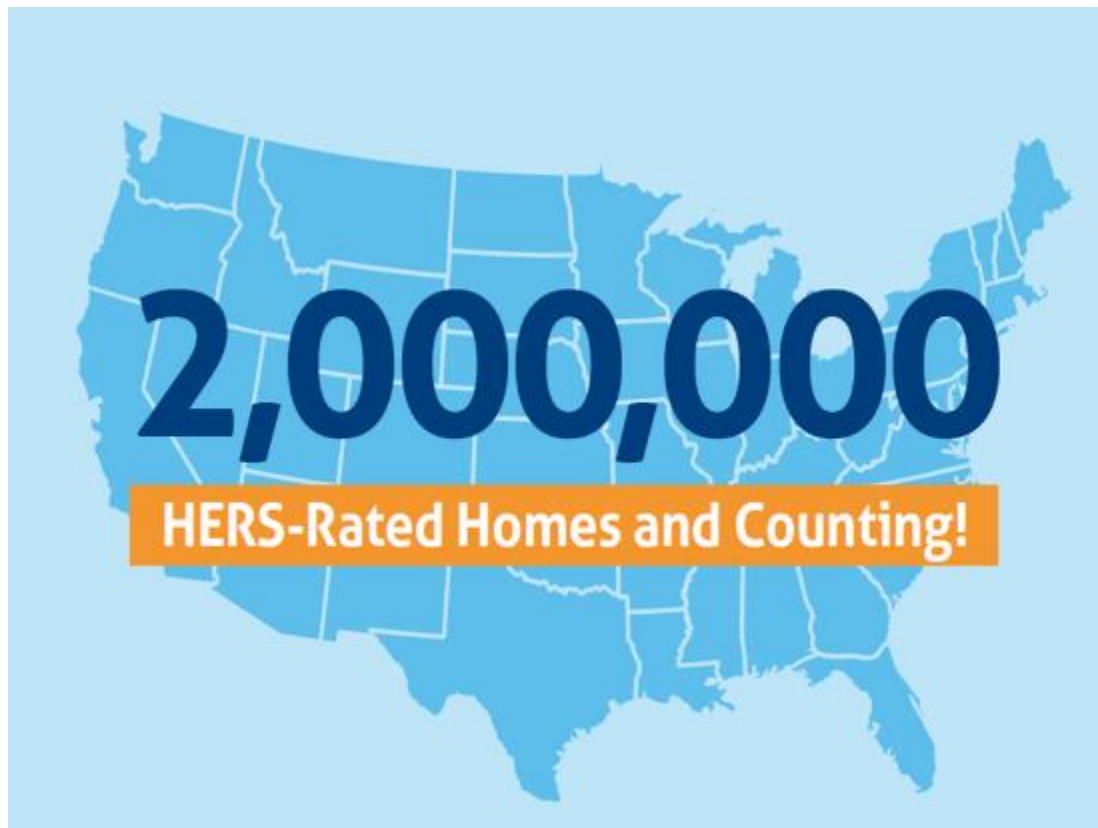


- ✓ A simple, easy to understand system for prospective homebuyers, Realtors, Appraisers and utilities to compare the energy performance of homes.



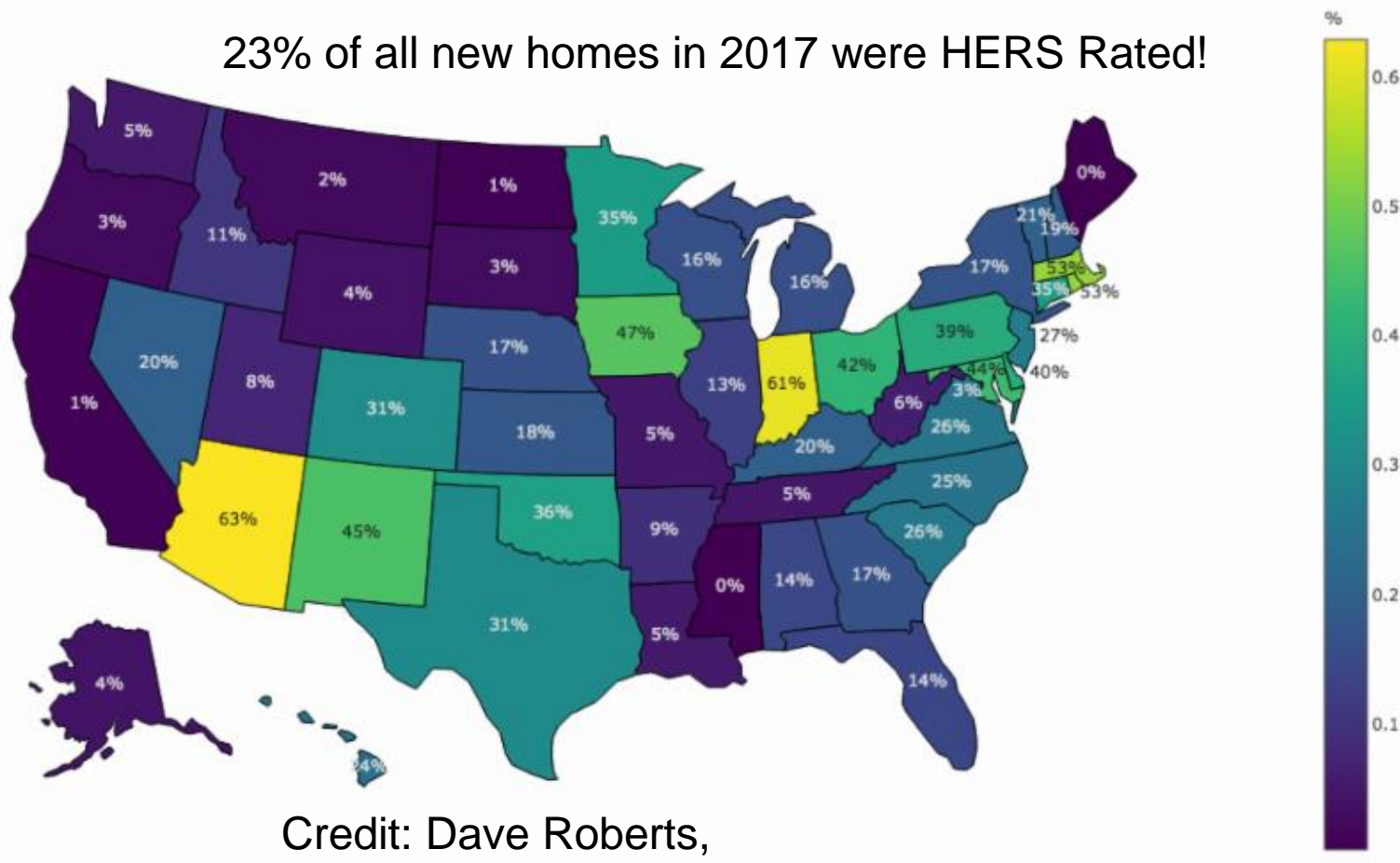
The HERS Index accounts for a home's energy consumption of heating, cooling, water heating, lighting and some appliances.

# More Than 2 Million HERS Ratings



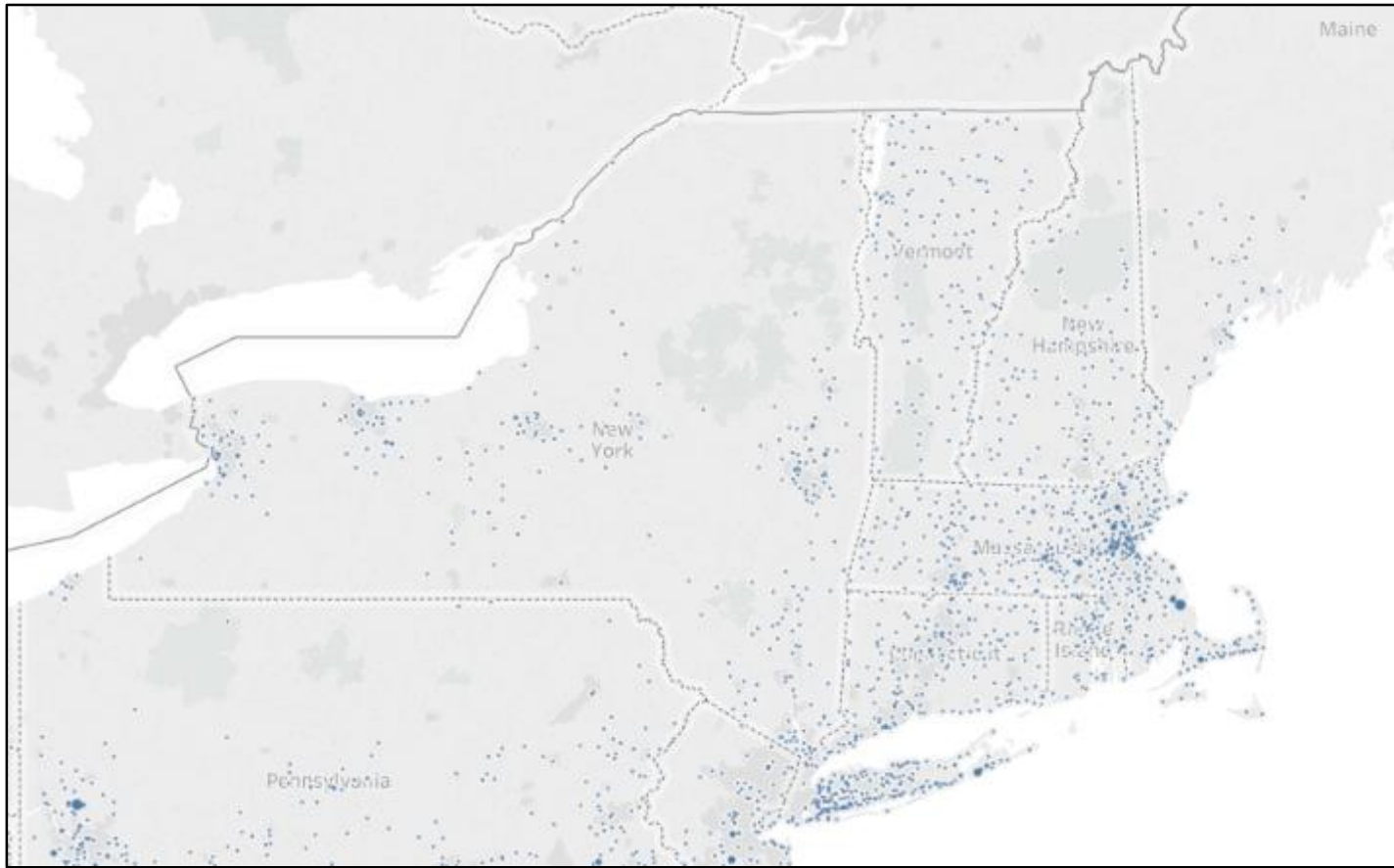
# Percentage of New Homes HERS Rated

23% of all new homes in 2017 were HERS Rated!

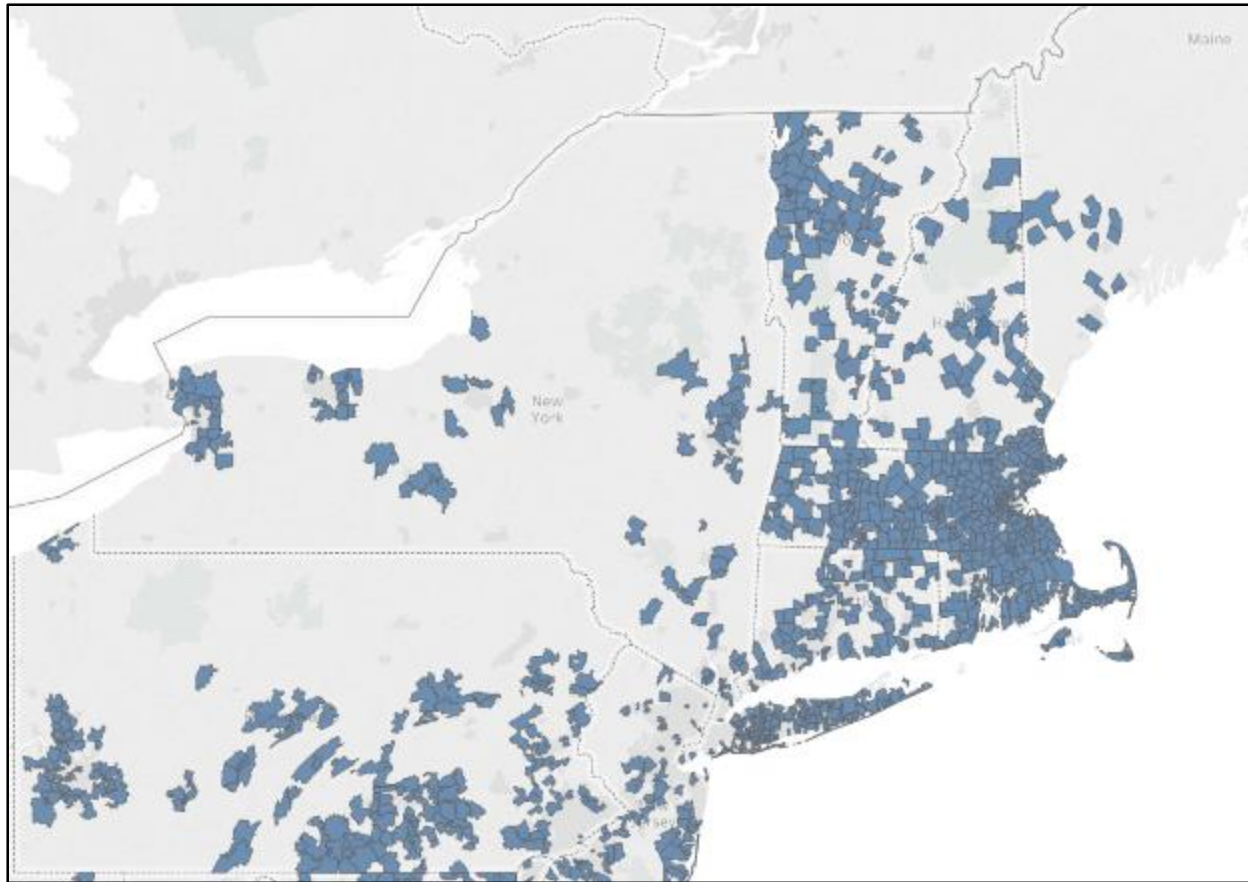


Credit: Dave Roberts,  
NREL

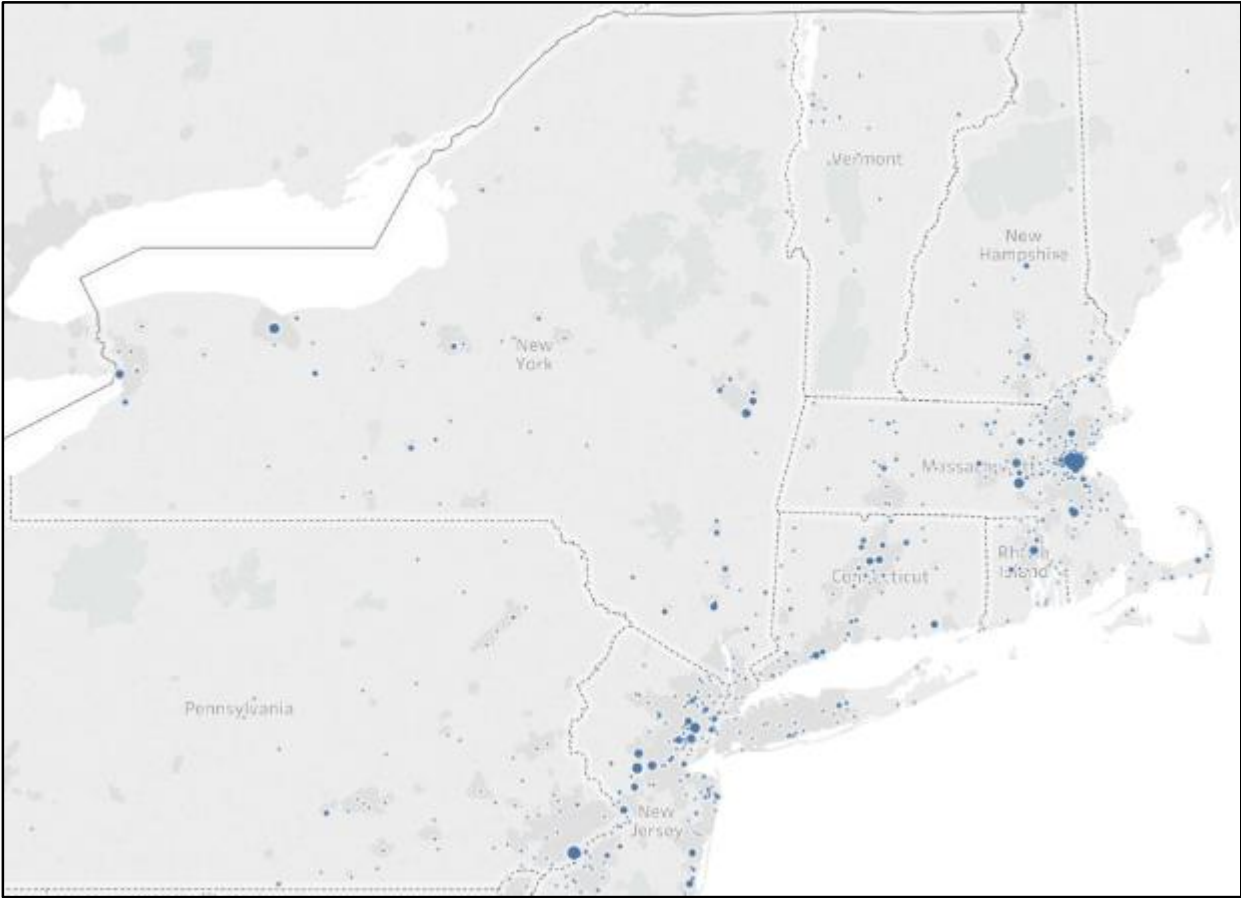
# Single Family HERS Ratings, 2014-17



# Single Family HERS Ratings by Zip Code, 2017

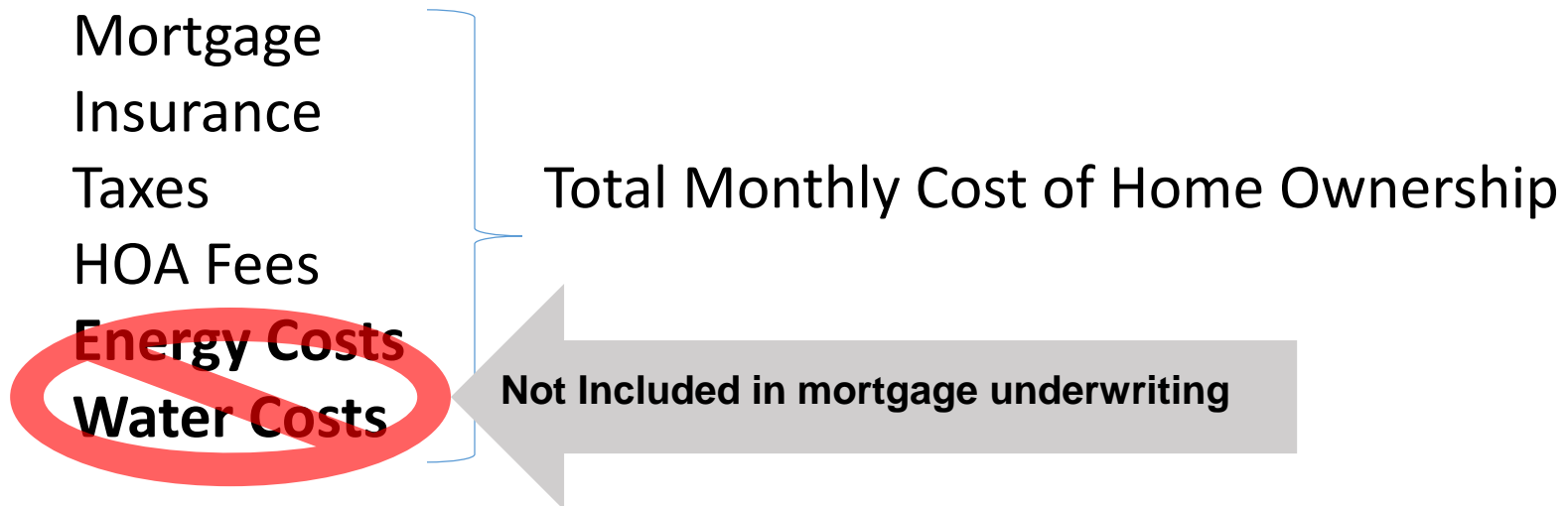


# Low-Rise Multifamily HERS Ratings, 2014-17



# Energy Costs More than Property Taxes or Insurance

**The average homeowner pays more for energy costs than property taxes or insurance.** (U.S. Census Bureau)





# Energy Data in the Real Estate Transaction



## Real Estate Agents

- Need access to data to include in the listing
- Market a home's EE and green features



## Lenders/Underwriters

- Need data to support potentially higher loan value



## Appraisers

- Need data to identify comparables and justify value.
- Need more data in the MLS to more easily compare EE features

# A HERS API for MLS Data Providers

**Auto-populate HERS Index scores into real estate listings!**

**RESO fields and corresponding RESNET Registry fields:**

Green Verification Type: **(HERS Rating)**

Green Verification Year: **(Date of Rating)**

Green Verification Metric: **(HERS Index Score)**

Green Verification Status: **(Confirmed/Sampled/Threshold Rating)**

Green Verification Source: **(RESNET Registry)**

Green Verification URL: (Direct link to the home's rating info on RESNET's

Public Access to the Registry: <http://www.resnet.us/public-access-to-resnet-national-registry>).

# Lower Mortgage Default Risk



RESEARCH REPORT

March 2013

## Home Energy Efficiency and Mortgage Risks

Research funded by the Institute for Market Transformation

UNC CENTER for COMMUNITY CAPITAL • INSTITUTE for MARKET TRANSFORMATION

Report published by UNC Center for Community Capital and Institute for Market Transformation

- Loans on ENERGY STAR homes are **32 percent less likely** to go into default.
- Within efficient homes, the more efficient the house, the **lower the default risk**. For each point on the Home Energy Rating System (HERS) index of efficiency, the risk of default drops.
- This is the first report of its kind and is based on a sample of 71,000 home loans from across the country. The level of confidence is 99 percent.

# Appraiser Portal

**RESNET**  
RESNET® ENERGY SERVICES NETWORK

## Online Appraisal Portal


The HERS Index is the **key to unlocking the value of green homes** and the HERS Index Score, developed and introduced by RESNET in 2006, is the **industry standard by which a home's energy efficiency is measured**. It has since grown to be regarded as a home's MPG for energy efficiency.





The **Appraisal Institute** and **RESNET** have partnered to provide appraisers with access to RESNET's National Registry of HERS Rated Homes through the **new Appraiser Portal**.



Accessing the Portal allows appraisers to begin to understand and value the energy efficiency of HERS-rated homes in their market including:

 HERS Index scores

 Estimated annual energy costs

 Energy cost savings

Appraisers can search for HERS-rated homes in their area by city and state, zip code or address. Search results can be filtered by:

HERS Index score range

Builder

Year of construction

HERS rating company



And best of all, the results can be downloaded as an Excel file so appraisers can print the results and **access them offline**.

# Other Programs Use HERS

## National Programs



Local/Regional Programs



Utility Programs

# Thank you!

## Questions?

**Contact Info:**

Ryan Meres  
Program Director  
RESNET  
ryan@resnet.us  
760-681-2391



Setting the Standards for  
Home Energy Efficiency



Presentation at the  
HELIX Summit, Dec 7,  
2018



the WHY of



“Everyone should have a home that is comfortable, healthy, safe and energy efficient”





60,000 HPwES upgrades in 2014 –  
the 800-year plan

## Taking Home Performance to Scale

Pearl's vision –  
millions of home  
upgrades per year





## Staged improvements – at different times, by different contractors



# Virtuous Circle of Visible Value

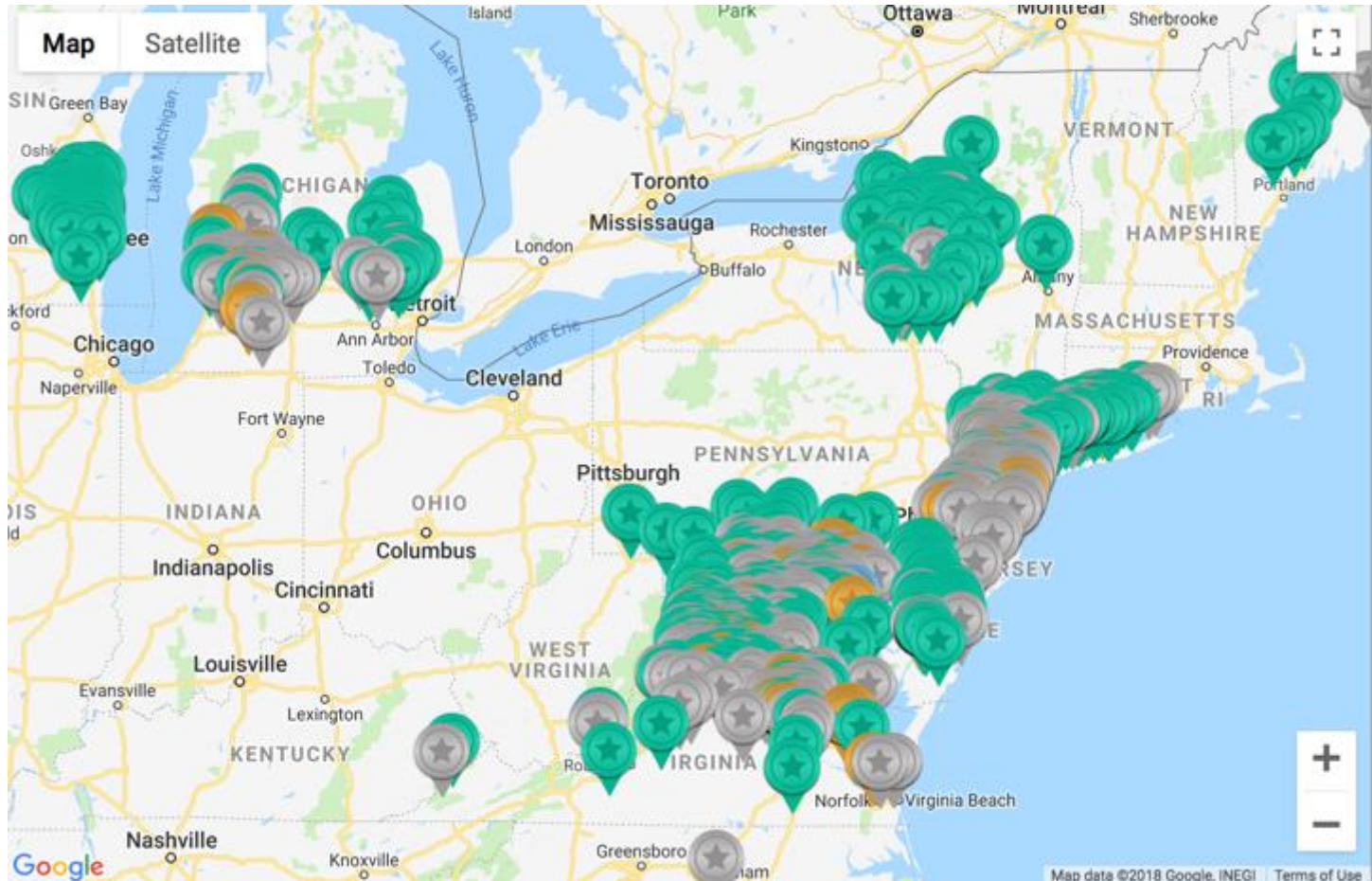


# Pearl Footprint



- 43 signed contractors in 12 states
- 11 brokerages in 8 states launched or in pilot

# Your Neighbor is Pearl Certified



Over 3,000 homes certified, 400 more per month



# The Pearl Contractor Advantage Network

“

**All our installations are Pearl Certified.**

**When we finish our work, we'll send you a Pearl Certification report.**

**Pearl's report can increase the value of your home by 5% or more when you sell or refinance**

”



# The Pearl Broker Advantage Network

“

**It's my fiduciary responsibility to get you the best price for your home.**

**Buyers want and will pay more for homes that cost less to own and operate, have better indoor for their families, and are comfortable.**

**I'm going to ask you some questions about your home's features that will help me uncover any hidden value we can market to interested buyers.**

**I do this with all of my listings to sell as them quickly as possible and for the best price.**

”

# In Their Own Words: Our Value Proposition

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“We’re not just closing deals with Pearl, we’re opening the door with Pearl.”

**John Kane**  
*Home Solutions Expert*  
Allied Energy



“Pearl allows our agents to get maximum value for their homes.”

**Carol Perry**  
*CBDO*  
HomeSmart  
International



“Pearl not only provides a home certification but also documentation of the value we add.”

**Josh Goldschmidt**  
*President*  
Eagle Construction





# Pearl Certification Reports

1577 Spring Hill Road  
Vienna, VA 22182

Gold Home  
Certificate No. H-007171



## Pearl Home Certification Report



007171



Certification Date: March 15, 2018

## High-Performing Home

1577 Spring Hill Road, Vienna, VA 22182

**Gold**

High-performing asset specifications can be found in the Pearl Certification Report and Appraisal Institute's *Residential Green and Energy Efficient Addendum* that accompany this certificate.

A handwritten signature in black ink that reads "W. Casey Murphy".

W. Casey Murphy  
Pearl VP of Quality  
Management

# The Home at a Glance



1577 Spring Hill Road,  
Vienna, VA 22182

Certified on March 15, 2018  
Pearl Gold Certificate | Pearl Score: 960

## What You Need to Know

This home has many high-performing features, including its attic insulation, attic hatch, air sealing, forced air ducts and windows.

This home will be healthier, more comfortable, cleaner and quieter, and cost less to operate, than most Virginia homes.



**This Pearl Gold home** has verified high-performing assets for a number of features that enhance the quality of life for its owners. Pearl Gold Certified: it's what value feels like.

**Certification Level**



**Gold**  
960 Pearl Points



Building Shell:  
281 / 300 points



Heating and Cooling:  
254 / 360 points



Baseload:  
201 / 240 points



Home Management:  
224 / 300 points

U.S. Homes Eligible  
for Pearl Certification Levels



Pearl Home Certification Report | [pearlcertification.com/registry](http://pearlcertification.com/registry) | Page 1

# Is My Insulation Better than the



1577 Spring Hill Road,  
Vienna, VA 22182

Certified on March 15, 2018  
Pearl Gold Certificate | Pearl Score: 960

## Special Performance Features of This Home



**Central Air Conditioner:**  
High efficiency unit

This home's central air conditioner is very efficient, meeting the newest Federal standards that went into effect in 2015.



**Forced Air Ducts:**  
In conditioned space

This home's ductwork is inside conditioned space - a big benefit for the lifetime of its systems. Installing ductwork in unconditioned space is bad building practice, as it not only wastes energy but also makes an expensive heating and cooling equipment work harder to cool the home - causing it to fail sooner.



**Refrigerator:**  
Very efficient

ENERGY STAR certified refrigerators are about 9-10 percent more energy efficient than models that meet the federal minimum energy efficiency standard.



**Dishwasher:**  
Very efficient

ENERGY STAR certified dishwashers use advanced technology to get your dishes clean while using less water and energy. Dishwashers that have earned the ENERGY STAR are, on average, about 5 percent more energy efficient and 15 percent more water efficient than standard models.



**CFL/LED Lighting:**  
Very efficient


This home has CFL and LED lighting, which means its lamps not only use less energy, they last a very long time. LED lights also produce better light along the color spectrum and are dimmable.



**Filters:**  
Very effective

The home's special air filter unit attracts and captures airborne particles and allergens, such as pollen, pet dander, and mold spores - promising healthier indoor air for residents.

# Detail for the Early Adopter Geeks




1577 Spring Hill Road,  
Vienna, VA 22182

Certified on March 15, 2018  
Pearl Gold Certificate | Pearl Score: 960

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**HOME ASSET DETAILS**  
**Building Shell**



Platinum Level: **244**  
This Home: **281**  
Average Home: **150**

---


**Attic and Roof**



Attic Hatch	<b>R-10 or higher</b>
R-Value	<b>R-49</b>
Insulation Type (predominant)	<b>Polyurethane</b>
Installation Quality	<b>Grade 2</b>


---

**Wall Insulation**



R-Value	<b>R-19</b>
Insulation Type (predominant)	<b>Fiberglass</b>
Installation Quality	<b>Grade 1</b>

Pearl Home Certification Report | [pearlcertification.com/registry](#) | Page 8



# and yes, a completed AI Addendum

<b>Client:</b>	Jane Doe	<b>Client File #:</b>	
<b>Subject Property:</b>	1577 Spring Hill Road, Vienna, VA 22182	<b>Appraisal File #:</b>	

EFFICIENCY FEATURES (Water, Energy, and Environmental. See types defined in glossary).			
The following items are considered within the appraisal analysis of the subject property:			
<b>Insulation</b>	<input type="checkbox"/> Fiberglass Blown-In <input checked="" type="checkbox"/> Foam Insulation <input type="checkbox"/> Cellulose <input checked="" type="checkbox"/> Fiberglass Batt Insulation <input checked="" type="checkbox"/> R-Value Wall <b>R-19</b> Ceiling <b>R-49</b> <input checked="" type="checkbox"/> Other <b>R-15 Conditioned basement</b>		
<b>Building Envelope</b>	Envelope Tightness: <b>4.0</b> Unit: <input type="checkbox"/> CFM25 <input type="checkbox"/> CFM50 <input checked="" type="checkbox"/> ACH50 <input type="checkbox"/> ACH natural Instructions: Insert the rating as a number that could be 0.5 to 7ACH50 or higher. The lower the number, the more air tight the envelope. Building Codes for area show maximum Envelope Tightness allowed based on the climate zone. Not all areas have adopted a building code. <a href="http://hcap-energy.org/">http://hcap-energy.org/</a>		
<b>Windows</b>	<input type="checkbox"/> ENERGY STAR® <input checked="" type="checkbox"/> Low E <input type="checkbox"/> High Impact <input type="checkbox"/> Storm	<input checked="" type="checkbox"/> Double Pane <input type="checkbox"/> Triple Pane	<input type="checkbox"/> Tinted <input type="checkbox"/> Solar Shades
<b>Day Lighting</b>	<input type="checkbox"/> # of Skylights:	<input type="checkbox"/> # of Solar Tubes:	<input type="checkbox"/> Other (Describe): % of lighting LEDs: <b>20</b>
<b>ENERGY STAR® Appliances</b>	ENERGY STAR®: <input checked="" type="checkbox"/> Dishwasher <input checked="" type="checkbox"/> Refrigerator <input type="checkbox"/> Washer/Dryer <input type="checkbox"/> Other Energy Source: <input type="checkbox"/> Propane <input type="checkbox"/> Electric <input type="checkbox"/> Natural Gas <input type="checkbox"/> Other (Describe): <b>Note:</b> ENERGY STAR® appliances do not result in an ENERGY STAR® Home.		
<b>Water Heater</b>	<input checked="" type="checkbox"/> ENERGY STAR®	Size: <b>&lt;=55</b> gallons <input type="checkbox"/> Tankless	<input type="checkbox"/> Solar (next page) <input type="checkbox"/> Heat Pump <input type="checkbox"/> Coil
<b>HVAC &amp; Related Equipment</b> Describe in comments area.	<input type="checkbox"/> High Efficiency HVAC SEER: <b>14.0</b> Efficiency Rating % AFUE* <b>85.0%</b> *Annual Fuel-Utilization Efficiency	<input type="checkbox"/> Heat Pump Efficiency Rating: COP: HSPF: SEER: EER:	Thermostat/Controllers? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Programmable Thermostat? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Auxiliary Heat Source? <input type="checkbox"/> Yes <input type="checkbox"/> No Radiant Floor Heat? <input type="checkbox"/> Yes <input type="checkbox"/> No Geothermal? <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Vehicle Ready? (car charger) <input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Indoor Environmental Quality</b>	<input checked="" type="checkbox"/> Energy (ERV) or Heat Recovery Ventilator (HRV) <input checked="" type="checkbox"/> Other Measured Whole-House Ventilation Device (See glossary) <input type="checkbox"/> Humidity Monitoring Device installed		<input type="checkbox"/> Non Toxic Pest Control <input type="checkbox"/> Radon System: <input type="checkbox"/> Active <input type="checkbox"/> Passive
<b>Water Efficiency</b>	<input type="checkbox"/> Reclaimed Water System (Describe): <input type="checkbox"/> Greywater reuse system <input type="checkbox"/> Water Saving Fixtures		<input type="checkbox"/> Rain Barrels Used in Irrigation <input type="checkbox"/> Cistern size: gallons <input type="checkbox"/> Location of cistern:
<b>Utility Costs</b>	Annual Utility Cost: \$ /year, based on: to (full year). Includes (check all that apply): <input type="checkbox"/> Electric <input type="checkbox"/> Heating <input type="checkbox"/> Water <input type="checkbox"/> Other:		# Of Occupants:
<b>Comments</b> Include source for information provided in this section.	<b>The following property has a number of high-performing features as detailed in the Pearl Certification report. According to a 2017 study by Remodeling magazine, air sealing and attic insulation has the highest value-to-cost ratio of any home improvement and was the only improvement to have a ratio higher than 1.0 (i.e., the added home value was more than the cost to perform the work). With the cooperation and approval of the Appraisal Institute, Pearl Certification has an AI REPORTS® License Agreement. The Appraisal Institute makes no representations, warranties or guarantees as to, and assumes no responsibility for, the data, analysis or work product provided by the individual appraiser(s) or any other individual in the specific contents of the AI Reports®.</b>		

Completed by: W. Casey Murphy	Title: Vice-President of Quality Systems	Date: 03/15/2018
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The objective of this Addendum is to standardize the communication of the high performing features of residential properties. Identifying the features not found on the appraisal form provides a basis for comparable selection and analysis of the features. Builders, contractors, homeowners, and third party verifiers are encouraged to complete this Addendum and present to appraisers, agents, lenders, and homeowners. Complete the pages that apply to the property appraised and provide to appraiser prior to the completion of an appraisal. Provide the Addendum to the lender at the time of loan application to assist them in understanding the property type so an appraiser with sufficient knowledge of this property type will be engaged to provide an appraisal to meet secondary mortgage market guidelines.



# One-Page “Home Highlights” Flyer



1577 Spring Hill Road,  
Vienna, VA 22182

Certified on March 15, 2018  
Pearl Gold Certificate | Pearl Score: 960

Learn more about this Pearl Certified home's benefits: read the free report at [www.pearlcertification.com/registry](http://www.pearlcertification.com/registry).

Pearl Certification is a national firm that provides third-party certification of **high-performing homes**: homes with “performance assets” that make them **healthy, safe, comfortable, energy and water efficient**. Pearl is an ENERGY STAR Partner.

**This Pearl Gold home** has verified high-performing assets for a number of features that enhance the quality of life for its owners. Pearl Certified: it's what value feels like.

## What You Need to Know

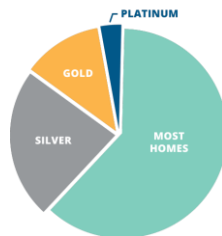
This home has many high-performing features, including its attic insulation, attic hatch, air sealing, forced air ducts and windows.

This home will be healthier, more comfortable, cleaner and quieter, and cost less to operate, than most Virginia homes.



## Gold Certified: Special Performance Features of this High-Performing Home

U.S. Homes Eligible  
for Pearl Certification Levels



Attic Insulation:  
Top 9% of VA  
homes

Attic Hatch: Well-  
insulated

Air Sealing: Top  
2% of VA homes

Forced Air Ducts:  
In conditioned  
space

Windows: Top  
25% of VA homes

Thermostat:  
Smart home  
feature

Filters: Very  
effective

Room Ventilation:  
Lower indoor  
humidity

Whole House  
Ventilation: Better  
air and energy  
savings

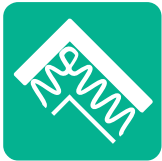


# House Tour Placards



1577 Spring Hill Road,  
Vienna, VA 22182

Certified on March 15, 2018  
Pearl Gold Certificate | Pearl Score: 960



## Attic Insulation: Top 9% of VA homes

This home's attic is very well-insulated - it will keep you warmer in the winter and cooler in the summer. Feel at home in your home!

With the superior insulation installed in this attic, you'll feel the difference right away: this house will be more comfortable - particularly in second floor rooms. Good attic insulation also protects against excessive winter heat loss that causes roof damage from snow melt.

Plus, enjoy lower utility bills year round.

# Social Media Posts

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## **Social Media Posts: 1577 Spring Hill Road, Vienna, VA**

### **ATTIC INSULATION**

New listing at 1577 Spring Hill Road, Vienna has been awarded Pearl Gold Certification in part because it scored very high for attic insulation. That's the stuff that keeps us cool and comfortable in the summer/warm and cozy in the winter. The US Department of Energy offers a good primer on insulation so you can see why it's all the rage. Link to: <https://energy.gov/energysaver/insulation>

### **AIR SEALING**

Air sealing might not be as sexy as new windows, but it is the single most cost-effective way to reduce energy bills and improve comfort. It's reason enough to take a look at 1577 Spring Hill Road, Vienna, a Pearl Gold Certified property for its many high-performing features. You won't be able to see the impressive air sealing, but you'll feel the difference every season. [Link to listing]





# Potential HELIX Data: Pearl Certification Level

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## Pearl Certification Levels



**Pearl Silver**

700 points



**Pearl Gold**

825 points



**Pearl Platinum**

975 points

# Potential HELIX Data: Home Feature Data

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- Furnace: 92.5 AFUE, multistage gas valve
- Air conditioner: 20 SEER,
- Ducts: <5% leakage, R-6 insulation
- Air source heat pump 18 SEER / 10.5 HSPF, ENERGY STAR Verified HVAC Installation
- Gas storage water heater: UEF .72
- Attic insulation: fiberglass R-49
- Wall insulation: cellulose R-20
- Windows: U-factor 0.27, SHGC 0.35
- Wi-Fi thermostat
- Home Energy Management system

# Potential HELIX Data: “Third Party”

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## Labels



U.S. DEPARTMENT OF ENERGY  
**Home Energy Score**





**Make your home's value visible**

**[www.pearlcertification.com](http://www.pearlcertification.com)**

Robin LeBaron  
[robin@pearlcertification.com](mailto:robin@pearlcertification.com)  
646-416.2650