

Valuing Energy Efficiency in Real Estate Transactions

A Midwest Home Performance Collaborative Webinar

Thank you for tuning in!

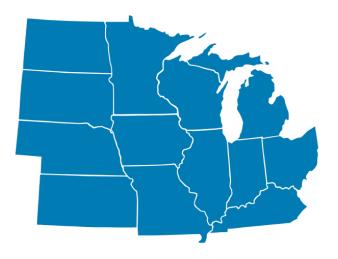
A few logistical items...

About MEEA

MEEA is a nonprofit membership organization with 160+ members, including:

- Utilities
- Research institutions
- State and local governments
- Energy efficiency-related businesses

As the key resource and champion for energy efficiency in the Midwest, MEEA helps a diverse range of stakeholders understand and implement cost-effective energy efficiency strategies that provide economic and environmental benefits.



Today's Topic:

Valuing EE in Real Estate Transactions

Agenda

- MO Home Energy Certification
 Program and Green Building Registry
 Integration
 - Amelia Trout, MO Dept. of Economic Development
- Pearl Certification
 - Robin LeBaron, Pearl National Home Certification
- National HPwES Update
 - Andrew Isaacs, HPwES
- Questions

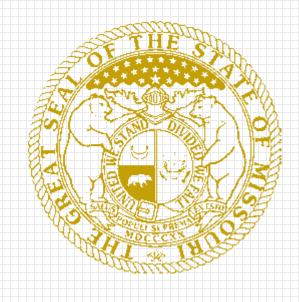
Missouri Home Energy Certification & Green Building Registry®

Missouri Division of Energy

Midwest Home Performance Collaborative Webinar I March 26, 2019

Missouri Division of Energy

As the state's energy office, the Missouri Division of Energy assists, educates, and encourages Missourians to advance the efficient use of diverse energy resources to drive economic development, provide for a healthier environment and to achieve greater energy security for future generations.



Impacts on Energy Consciousness in Missouri

- Lack of Public Benefit Funds
- Relatively-low utility rates
- Home-rule state
- No statewide energy codes





Missouri Home Energy Certification (MHEC)





What is MHEC?

MHEC is a voluntary statewide program created to stimulate interest in home energy audits and encourage energy efficient retrofits by recognizing the value of these features with a state-issued gold or silver certificate.





Why MHEC?

- Communicates value of EE homes
- Establishes consistency in home ratings
- Recognizes new and existing homes
- Steps of involvement





How to Participate



Locate a Missouri certified home energy auditor

Make recommended efficiency upgrades to the home

Work with auditor to certify the home

Check with servicing utilities for incentives and rebates





Deduct home energy audit and retrofits



MHEC Next Steps for Success

- Reconstruct and enhance online platform
- Work with investor-owned and municipal utilities
- Connect with realtors, inspectors, appraisers, lenders and homebuilder organizations
- Work with residential energy stakeholders to overcome technical and market barriers



Green Building Registry® (GBR)





Green Building Registry®

The GBR performs functions that are essential to communicate the value of accurate and verified home energy data with interested and invested parties at the time of sale.





GBR Demonstrates Efficiency

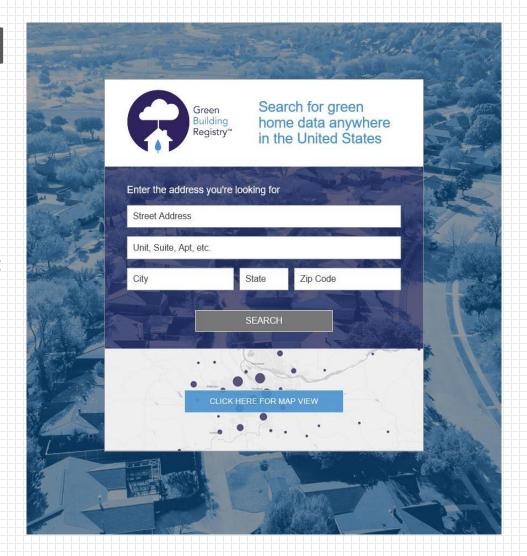
- Search for home energy efficiency data
- Access accurate, third party-verified home energy scorecards
- Arrange to securely retrieve data from trusted sources through API connection
- Import data into Multiple Listing Services at the click of a button
- Use the permanent URL into the notes of a real estate listing
- Communicate the value of home energy efficiency features



Accessible and Accurate Data

After a home energy audit with a qualified assessor residents may enter their address to search for home efficiency data from qualified sources, such as:

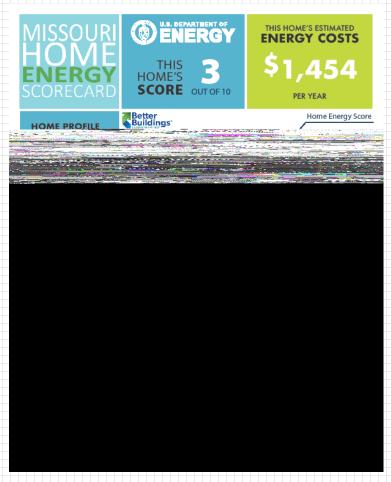
- U.S. DOE HEScore
- RESNET
- Local utility providers





Custom Scorecards

HEScore Scorecard



MISSOURI HOME ENERGY SCORECARD THIS HOMES 72

THIS HOME'S ESTIMATED
ENERGY COSTS

\$1,589

PER YEAR

HOME PROFILE

LOCATION:

3334 NE 55th Ave Columbia, MO 65201

2017

HEATED FLOOR AREA: 1,100 sq.ft.

UMBER OF BEDROOMS:

ASSESSMENT

SSESSMENT DATE:

07/24/2018

SCORE EXPIRATION DATE:

Accreco

GBR Admin Earth Advantage

PHONE

5555551212

CRASH

greenbuildingregistry.com

12345678

MAKE THE MOST OUT OF YOUR NEW HOME!

To learn more about ways to save energy, visit:

Energy.mo.gov

HERS® Index



HOW MUCH ENERGY IS THIS HOME LIKELY TO USE?

Electric: 13,251 kWh/yr. \$1,458 Natural Gas: 653 therms/yr. \$131 Other: gal/yr. \$0	TOTALEN	IERGY COSTS PER YEAR	\$1,589
	Other:	gal/yr	\$0
Electric: 13,251 kWh/yr	Natural Ga	s: 653 therms/yr	\$131
	Electric: 13	,251 kWh/yr	\$1,458

RENEWABLE ENERGY DOES THIS HOME GENERATE?

HOW MUCH

___ kWh/yr

WHAT DOES THE SCORE MEAN?

Home Energy Rating System (HERS) Index: The HERS Rating conveys a home's energy efficiency relative to the 2006 International Energy Conservation code. HERS uses an asset based energy model that compares the home as designed (the "rated home") against the same home built to 2006 IECC standards, considered the "relience home", which would score 100. A Lower score is better, a home but uses 50% more energy than the reference home would score 150, and a home using 50% less energy would score 50. A zero-energy home that uses no energy (through efficiency and renewables) and saves 100% of the reference home's energy would score a 0. The score is most often used by builders complying with building energy code through the Energy Rating Index pathway in the International Energy Conservation Code (IECC), the ENERGY STAR program, or by contractors who are competing based on energy efficiency in exe construction. Some lenders may also recognize HERS ratings and provide favorable financing. RESNET and the US Department of Energy determined that a typical recale home scores 130 on the HERS Index.

- Total energy costs per year are estimated using an average utility cost (per unit of energy) for the State of Missouri (\$0.11/kwh for electricity: \$0.20/therm for natural gas).
- Actual energy costs per year may vary based on occupant behavior, utility provider, weather patterns, and appliance maintenance/health.
- Relisting 2-7 years after the assessment date requires a free reprint of the Report from missouri.greenbuildingregistry.com to update energy information.
- This report meets the standards of Missouri Home Energy Certification program administered by the Department of Economic Development Division of Energy.

HERS Index Scorecard



Bridging the Gap

GBR bridges the gap among appraisers, efficiency contractors, homeowners, lenders, and real estate agents by providing accessible and accurate energy efficiency home data through features that are reliable, secure, and easy to use.

MLS-linking

Real-time reporting

Admin dashboard

RESO compliant

Address matching

SEED® storage

Resources:

Visit our program webpage: energy.mo.gov/GreenBuildingRegistryMO

Visit Green Building Registry®: us.greenbuildingregistry.com

Contact:

Amelia Trout 573.751.1304

Amelia.Trout@ded.mo.gov









Pearl Certification:

Pearl Making Energy Effice Making Energy Efficiency Visible





Pearl's Founders



Cynthia Adams CEO

- Former Executive Director of LEAP, Charlottesville VA
- Gov. appointee to Virginia Energy Council and NAR Sustainability Advisory Group appointee
- NAR Green Designee and USGBC LEED AP
- · Former new-home builder



Robin LeBaron, PhD President and COO

- Former Managing Director of the National Home Performance Council (now merged with HPC)
- Led national projects on data standards (HPXML) and utility cost-effectiveness testing
- Former developer and manager of multifamily affordable housing



The Challenge: More Home Upgrades, More Quickly

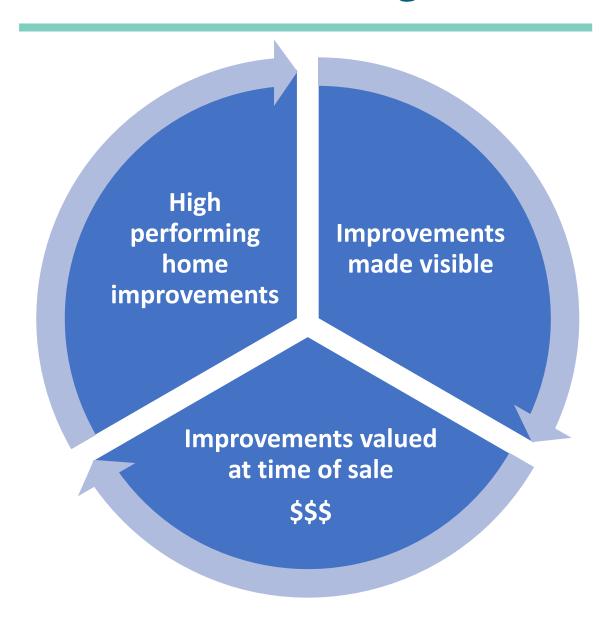
< 1 million HPwES wholehouse upgrades in the past decade

70 million single-unit homes

700 years is too long!



The Solution (I): Making Value Visible





The Solution (II): Supporting Upgrades Over

Instead of a one-time whole-house





 Enable homeowners to stage upgrades over time at their convenience and as their budget allows



How We Do It



Pearl makes energy efficient and renewable home features **visible** through certification











We work with the real estate sector to make sure that visibility is translated into **value** at time of sale or refinance





High-performing Home Asset Categories



Building Shell

300 Points

Roof, walls, windows, and foundation



Heating & Cooling

360 Points

Furnace, AC, heat pumps, ductwork



Baseload

240 Points

Water heater, lighting, appliances



Home Management

300 Points

Smart devices, demand response, HIP









Renewable Energy Features

Solar panels, battery storage, EV charging, inverters

Pearl Efficiency Certification Levels



Pearl Silver 700 points

A Pearl Silver
home typically has
an IECC 2015-level
building shell OR
ENERGY STAR
heating and
cooling systems



Pearl Gold 825 points

A Pearl Silver home typically has IECC 2015level building shell AND ENERGY STAR heating and cooling systems



Pearl Platinum 975 points

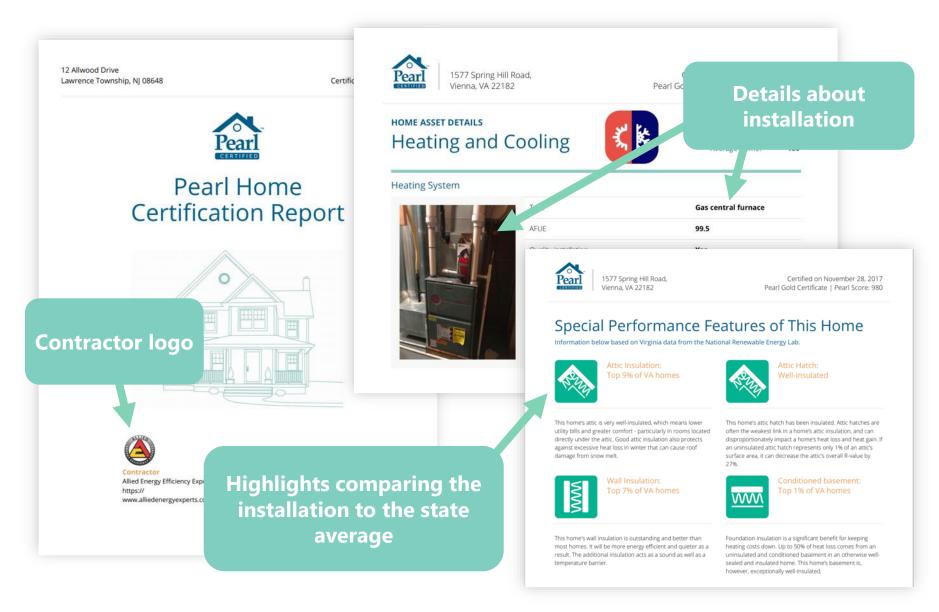
A Pearl Platinum home typically has IECC 2015-level building shell and ENERGY STAR HVAC, plus efficient appliances, water heating, lighting, and smart devices and controls



Pearl's System is NOT an MPG Rating

- Pearl does not model or predict a home's energy usage
- Pearl's showcases a home's energy efficient assets and gives the owner guidance on which improvements to make
- We believe it is important to highlight energy ratings like the Home Energy Score or HERS Index in the certification
 report

High-Performing Home Certification Report



Solar Certification Report



Home Investment Plan

₽₩HI

Feature Level Education



HOME INVESTMENT PLAN 10710 Gazeb Mequon, WI 5

Attic Insulation

ABOUT INSULATION Attic insulation is one of the most

important assets in your home. Keep your home warmer in the winter and cooler the summer by adding to your attic insulation's -value. R-value is the capacity of an insulating material to resist heat flow. Higher R-value numbers bring increased comfort and lower energy use.



LESSENS TEMPERATURE SWINGS IN YOUR HOME INCREASES SOUND-PROOFING FOR A QUIETER HOME

	Existing	Package 3	Package 2	Package 1
Insulation Type	Fiberglass Batt	Blown Fiberglass	Blown Fiberglass	Blown Fiberglass
R-Value	R-14	R-50	R-50	R-50
Insulation Quality	Unknown	Grade 1	Grade 1	Grade 1
Comments				
How Does It Compare?		Top 35% of WI homes	Top 35% of WI homes	Top 35% of WI homes
Potential Pearl Points		48	48	48

is Report

SIN HOME IMPROVEMENT PACKAGE RECOMMENDATIONS

es Include	Existing	Package 3	Package 2	Package 1
tic Insulation	R-14	Blown Fiberglass R-50 Insulate Attic Hatch	Blown Fiberglass R-50 Insulate Attic Hatch	Blown Fiberglass R-50 Insulate Attic Hatch
Sealing	None	Ø	8	8
awlspace sulation	None	Spray Foam Closed Cell R-38	Spray Foam Closed Cell R-38	8
al Pearl		726	700	648
al Pearl Tier		Silver	Silver	Asset
ost		\$14,000	\$10,000	\$5,000

WHAT IS THIS PLAN?

Understanding what's in your home and your options for improvements can be complicated — Pearl is here to help. A Pearl Home Investment Plan will give you guidance on your home and options for upgrading specific assets to increase your comfort, lower energy bills and improve indoor air quality.

- · Wisconsin Home Improvement is a member of the Pearl Advantage Network which means not only do they deliver superior customer service, but they are approved to collect investment grade data to certify your home.
- · This home investment plan will help you plan for short term and long term improvements to create a high-performing home.
- · Each investment you make will increase your Pearl score making your home more comfortable and energy efficient - as well as valuable.

PREPARED BY



Steve Kooi (262) 345-9922 skooi@tds.net https://www.whiinsulation.com/

Co-branded with Contractor

Custom Improvement Packages Tied to Certification



* Actual points will depend on the system utilization in context of the whole home

PEARL CERTIFICATION HOME INVESTMENT PLAN • PAGE 2



MLS and Appraisal Documentation

MLS Listing Report



11007 Oak Leaf Court, Reston, VA 20190 Verified Green Fields Listing Sheet

This property's home performance features map to the MLS fields below. Please see accompanying Poort Home Certification Report for documentation of the features' technical seedification.

Appliances

- ✓ ENERGY STAR Clothes washer
- ✓ ENERGY STAR Dishwasher
- ✓ ENERGY STAR Retrigerator
- ✓ Water Heater High-Efficiency
 ✓ Water Heater Jankless

Windows/Doors

- ✓ Double Pane Windows
- ✓ ENERGY STAR Qualified Windows
- ✓ Low E Windows

Constructions Materials

- ✓ Batt insulation
- ✓ Insulated Exterior Duct-work
- ✓ Spray Foam

Cooling System

- ✓ ENERCY STAR Cooling System
- ✓ Heat Pump(s)
- ✓ Programmable Thermostat

Heating Fuel

- ✓ Electric
- ✓ Natural Ga

Date: 7/21/2016

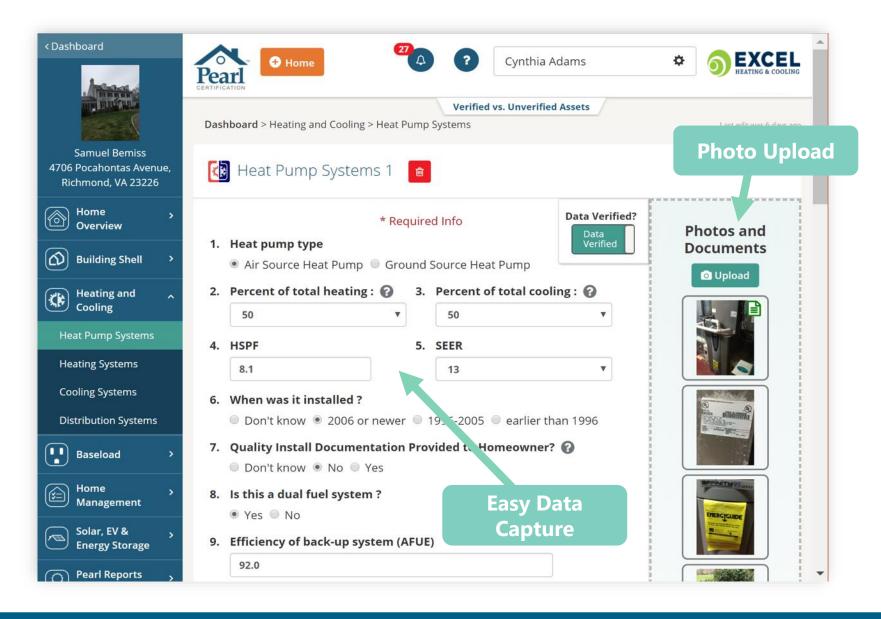
Perrel Silver Horn

Certificate #00221

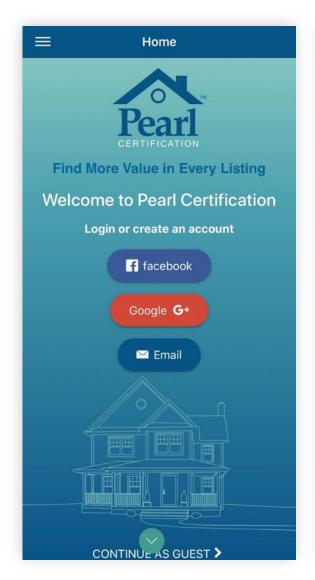
Appraisal Addendum

The following iten	ns are considered within the appraisal analysis of the subject property:			
	Solar Photovoltaic (Electric) System			
	Array#1	Array #2 (if applicable)		
Type of Ownership	□ Lessed	□ Leased □ Owned □ Solar Loan □ UCC Filing □ Purchase Power Agreement (PPA)		
Panel Specifications	System Size; 7.3700 kW (1kW – 1000 Watts) Age of Paneis: 0 years Energy Production 14048 kWh Source of Frengy Production Fallmate: Aurora Manufacture: Boviet Warranty on Paneis; 25 years	System Size, kW (1kW – 1000 Watts) Age of Panels years Energy Production kWh Source of Energy Production Estimate: Wanufacturer: Warranty on Panels years		
Array Placement Affects energy production. *Orientation	Location (not, ground, etc.): Ground © Floed Mount This flow 30 *Azmuth. 220	Location (reof, ground, etc.): Tit / Sope: *Azimuth: *Orientation (direction panels face);		
Inverter Specifications	Number of Inverters per Array. 1 Age: 0 years Wattage: 300 watts Manufacturer 50dar Edge Warranty Term: 25 years	Number of Inverters per Array. Age: years Wattage: watts Montfacturer: Warranty Term: years		
Energy Storing Batteries	Rattery Type: □ Lithium-ion: □ Lithium-ion Polymer: □ Lead Add: □ Lead Calc Manufacturer: Storage Capacity: Wh Warranty Term: years: Battery age:	ium 🖸 AGM 🔲 G	SEL.	
Name of Utility Company:	CVEC	Charge / kWh from Utility	\$.103/ kWh	
	Solar Thermal Water Heating System			
Type of System:	Active: O Direct	Storage Tank Size	Gallons:	
Collector Type:	□ Flat-Plat □ Integral □ Evacuated-Tube Solar	System Age	Years:	
Back-Up System:	☐ Conventional Water Heater ☐ Tankless On Demand ☐ Tankless Litest Pump	Warranty Term		
Solar Energy Factor (SEF):	*Rating ranges 1 to 11. Higher number is more efficient.	Manufacturer		
Comments Discuss incentives available for new panels,	Oscuss source of information and define other renewable energy sources, such a	as wind, hydropow	er, biomass power, etc.	
condition of current panels, and any maintenance issues. If leased, provide the lease terms.	Note: Leased solar PV systems and Power Purchase Agreements should not be included in the value of the real property as these systems general a lease or a PFA the terms must be provided to the appraiser for analysis. Apprai the lease or PPA have on the price buyers are willing to pay for the property.			

Certification App: Contractor View



RE Agent "Certify My Home" App





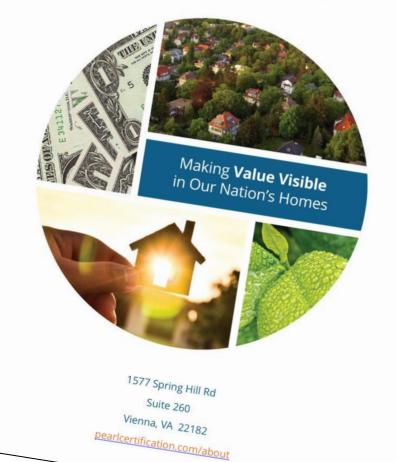
Features:

- 7 simple questions
- Instant results
- Request certification through the app



Independent
appraiser study
finds Pearl
Certification adds
5% to the sales
price

Appraisers' Analysis of Pearl National Home Certification Sales Premiums





Two Channels to Market



Contractors use Pearl to close more sales and sell higher-quality goods and services



Real Estate agents use Pearl to differentiate themselves from competition and make the listing stand out



In Their Own Words: Pearl's Value Proposition



"We're not just closing 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



National Expansion



Signed On With Pearl:

48 builders/contractors

10 large brokers in **16 states** (including #1 Trane dealer and 5th largest brokerage in the US)

Pilots





HomeSmart, City of Phoenix and APS

Certifying a critical mass of homes and studying market







Driving a critical mass of residential certifications in three Massachusetts





NYSERDA

Pearl as a pilot voluntary home energy rating system for three regions in New York state



The NYSERDA Pilot

Pilot 1

Contractors test
the effectiveness of
Pearl Certification
as a sales tool and
guide to help
homeowners make
energy efficiency
improvements

Pilot 2

Home Inspectors provide Pearl Certifications for new home buyers to encourage energy efficiency upgrades

Three NYS Regions

- Irondequoit
- Tompkins County
- Staten Island





What the Network Looks Like: **Phoenix**



Phoenix wants to Pearl Certify 25% of housing stock by 2030 to drive demand for energy efficient and renewable energy installations



Thank You

Robin LeBaron, Co-Founder, President and COO robin@pearlcertification.com



Home Performance with ENERGY STAR 2019 Overview

Andrew Isaacs, National Account Manager HPwES March 26th 2019







Home Performance with ENERGY STAR Program Updates

General Program Updates

- New HPwES Program Manger Steve Dunn, DOE
- Sponsor Check In Calls and HPC April 1-4, 2019 Chicago, IL
- Reporting: Collecting Newly Revised HPwES Annual Reports
- HPwES Awards Update Awards Ceremony April 11th 2019 in DC.
 *Winners announced Tuesday, April 9th
- DOE RBI Meeting in Chicago Monday, April 1st

2019 Key Priorities

- Home Energy Score and HPwES Integration
- Research Opportunities for Sponsors and the National Labs
- Low and Mod Income and Multifamily Extending the Reach





Home Performance with ENERGY STAR in Focus



- 16th Anniversary for HPwES
- 41 Sponsors and 2 Aggregator Pilots
- Over 774,682 completed projects under the HPwES
- Over 86,660 completed projects in 2018
- Approximately 1,400 contractors participating nationwide in HPwES
- Average project size was \$5,700 in 2018





Importance of the ENERGY STAR Brand



91%

of households recognized the ENERGY STAR label when shown the label

75%

of households had a high understanding of the ENERGY STAR label





Continuing to Expand Applicability of HPwES



Whole-House Multiple Measure Programs



Incremental Programs-HVAC



Multi-Family Programs



Affordable/Low Income Programs



Renewable Programs



Health and Home Performance Programs



Home Energy Score





2019 HPC National Home Performance Conference

We will see you there!!!



2019 HPC National Home Performance CONFERENCE & TRADE SHOW

April 1-4, 2019 * Sheraton Grand Chicago * Chicago, IL



www.homeperformance.org/conferences/HPC19

http://www.homeperformance.org/conferences/HPC19





2019 HPC National Home Performance Conference

DOE RBI Meeting, Monday April 1st 1:30PM - 5:00PM

1:30 - 1:40	Welcome
1:40 - 3:00	The Midafternoon Show with Joan Glickman
	Monologue
	 Year in Review and Plans for the Future
	Guest Interviews
	 Amanda Stinton, National Association of REALTORS
	 Jonathan Waterworth, AZ Energy Efficient Home
	 Deborah Philbrick, Elevate Energy
	Kara Jonas, Midwest Energy Efficiency Alliance
3:00 - 3:15	Coffee break
3:15 – 3:45	Audience Feedback on Residential Buildings Integration Activities
3:45 – 4:00	Introduction to Speed Meeting Activity
4:00 - 5:00	Speed Meeting Activity. Small group discussions on
	Home Performance with ENERGY STAR and Home Energy Score integration
	Home Improvement Expert Checklists
	Home Energy Score implementation
	• IAQ
	Opportunities for communicating resources
5:00	Adjourn

https://www.eventbrite.com/e/residential-energy-efficiency-programs-from-the-us-department-of-energy-hpc-2019-tickets-55282872560





2019 HPC National Home Performance Conference

We will see you there!!!

DOE RBI HPWES HPC Sessions

- Doing it Right: Contractor of the Year Showcase
- Home Performance with ENERGY STAR: All the Ingredients You Need for a Successful Program
- Show Me the Money: Financing Products to Enable Home Performance Projects
- Efficient and Affordable: Expanding Opportunities for Deeper Impacts in Low and Moderate Income Households
- Getting residential air-source heat pumps right in cold climates

http://www.homeperformance.org/conferences/HPC19





Questions?

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HomePerformance@energystar.gov





Questions?

Please type questions into the chat box.

Thank you for joining us!

Stay tuned for the next Midwest Home Performance Collaborative Webinar coming soon.