



Who's Keeping Score?

Using Home Energy Score and Home Performance with ENERGY STAR Together

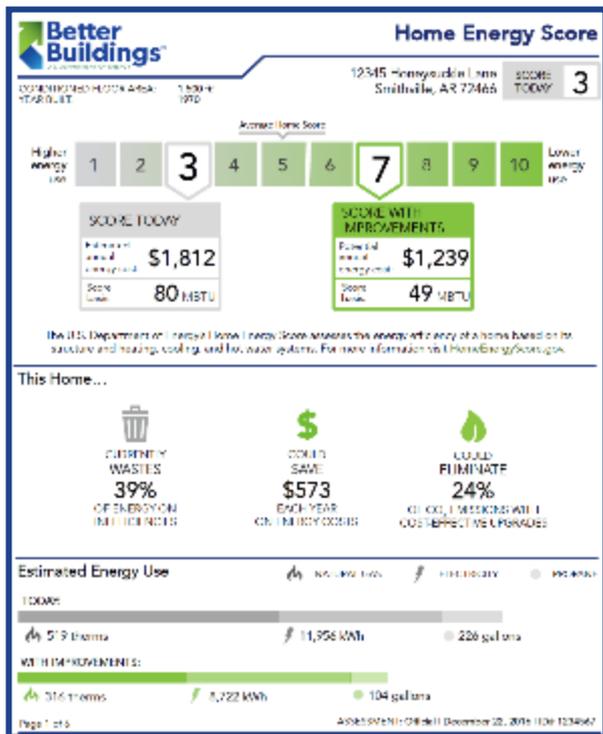


Better Buildings
Conference
May 17th, 2017

Presenters

- Joan Glickman & Ely Jacobsohn, U.S. Department of Energy
- Terry Freeman, Columbia Water & Light
- Elizabeth Murphy, United Illuminating Co.
- Scott Bloedorn, Focus on Energy
- Pamela Brookstein, Elevate Energy

Using Home Energy Score to promote HPwES, Weatherization, and more



Ely Jacobsohn

Program Manager

Home Performance with ENERGY STAR

U.S. Department of Energy

Joan Glickman

Program Manager

Home Energy Score

U.S. Department of Energy

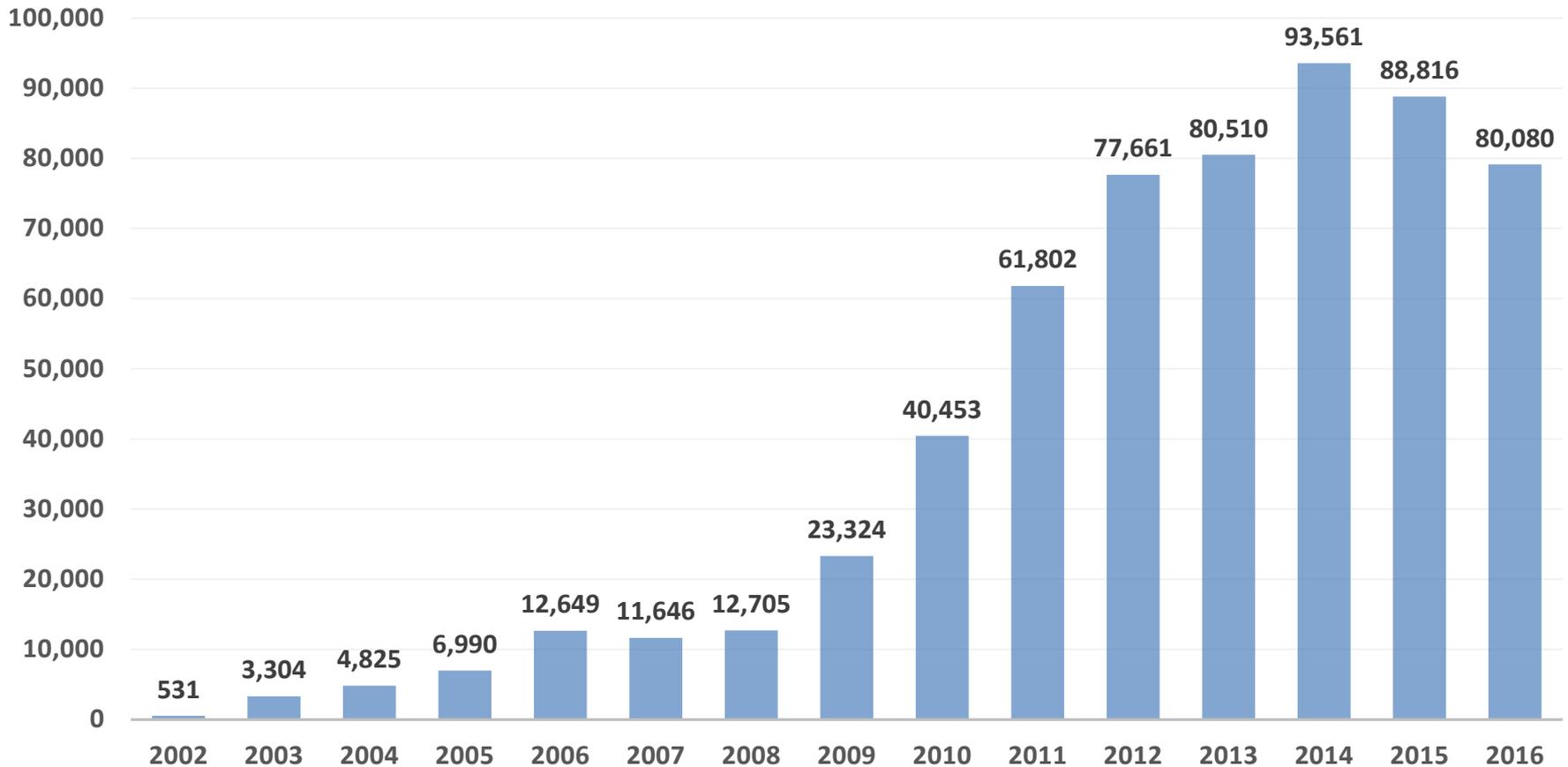
What is Home Performance with ENERGY STAR?

A public-private voluntary partnership program focused on turning building science-based recommendations into solutions for improved, energy-efficient homes

- ✓ **Trust** – the work and the worker
- ✓ **Quality** – third-party quality assurance
- ✓ **Whole-House Approach** – methodical, thoughtful improvements



Projects Since 2002



Over 600,000 Projects Completed!

Challenges and Roadblocks

**Sustainable
Program
Funding**

**Cost
Effectiveness**

Weather

Energy Prices

**Contractor
Retention**

**Finding
Qualified
Employees**

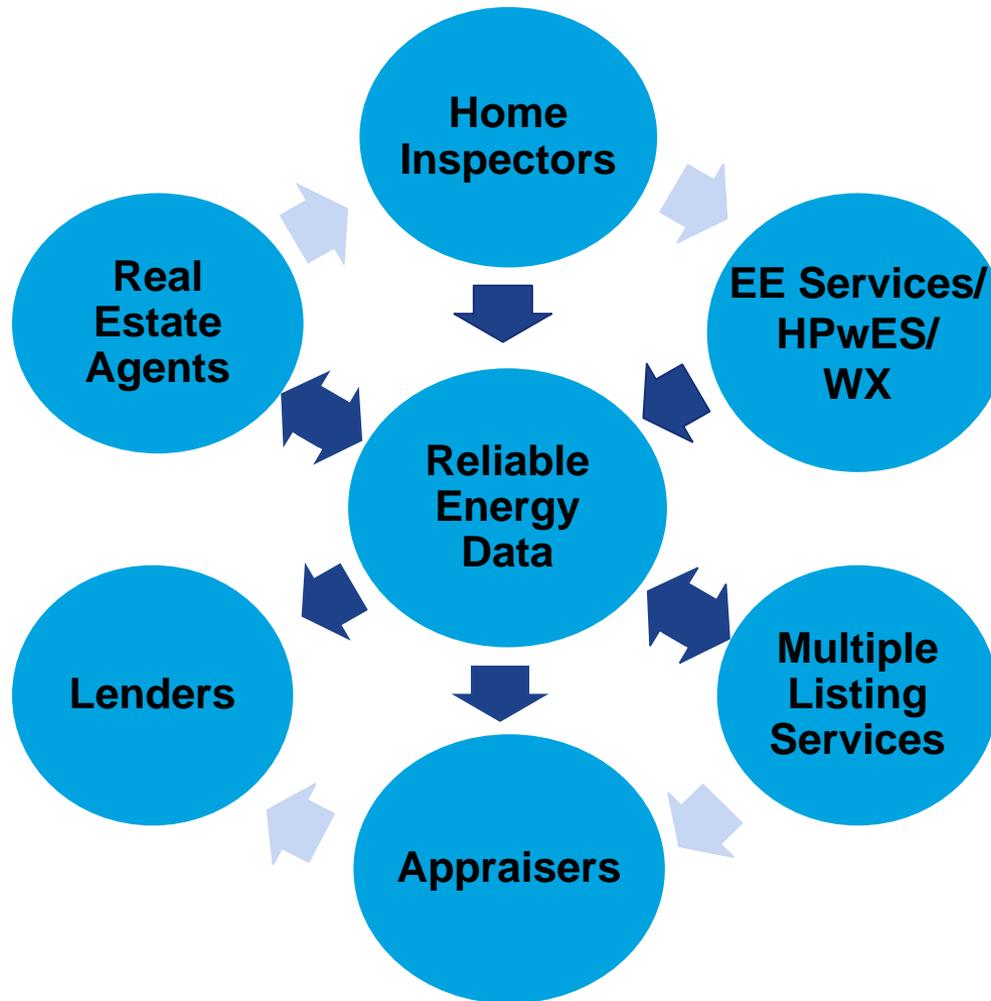
**Lack of
Consumer
Awareness**

**Market
Saturation**

Why Is Residential Labeling Important?

Labels make the invisible, visible.

Home Sellers want to get credit for their investments in energy efficient equipment and other features

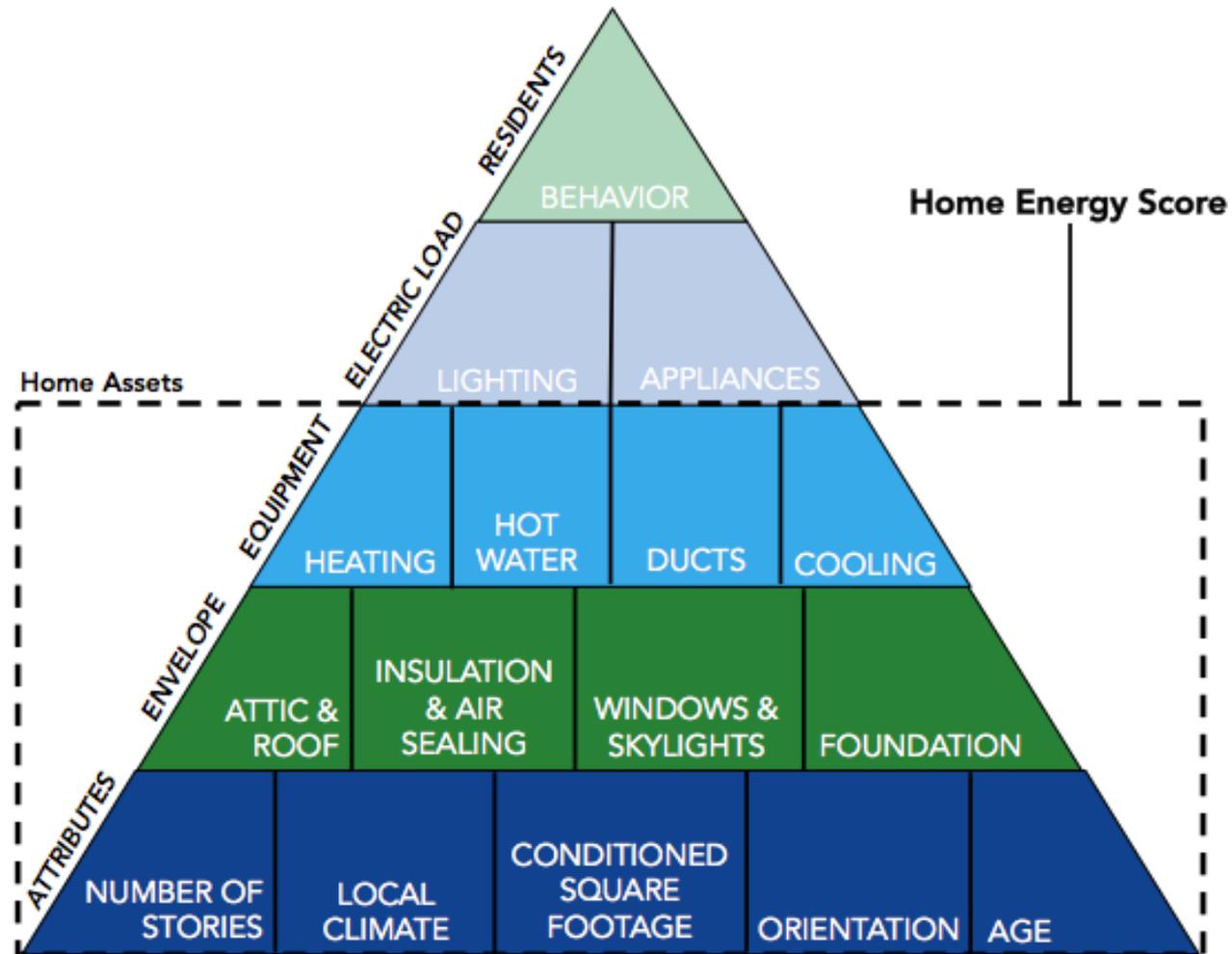


Home Buyers want to know what they're buying and be able to predict monthly expenses (e.g., utility costs)

Labels can help capture the value of EE at time of sale.

What Data and Information Comprise a Home Energy Score?

- Home Energy Score is **based on a home's assets that affect energy use**
- Assets reflect those parts of the property that typically convey at time of sale
- **The Scoring Tool applies standard assumptions about occupant behavior and local weather** to allow “apples to apples” comparison between homes



Home Energy Score Highlights

- **New Score Report design with customizable layouts** *May 2016*
- **New website with content for Assessors and homeowners** *August 2016*
- **Energy Efficiency for Real Estate Professionals resource** *October 2016*
- **Faster and more user-friendly Simulation Training tool** *January 2017*
- **Scoring Tool version 2017: Accounts for ductless mini splits, evaporative coolers, and solar PV installations** *February 2017*
- **“Find an Assessor” search tool on the Home Energy Score website** *February 2017*
- ***And more to come!***

Integrating Home Energy Score and Home Performance with ENERGY STAR

Home Energy Score can be used with HPwES

Can help meet some of the HPwES Minimum Requirements

Homeowner Report with a list of recommended improvements

Wholehouse Evaluation

Perfect for Single measure incremental upgrade oriented program models

No Cost to Use HEScore

HEScore is easy to use - evaluations can typically be completed in less than an hour

Just need to add Health and Safety and Diagnostics when Needed



HPwES *and* HEScore



Home Performance with ENERGY STAR®



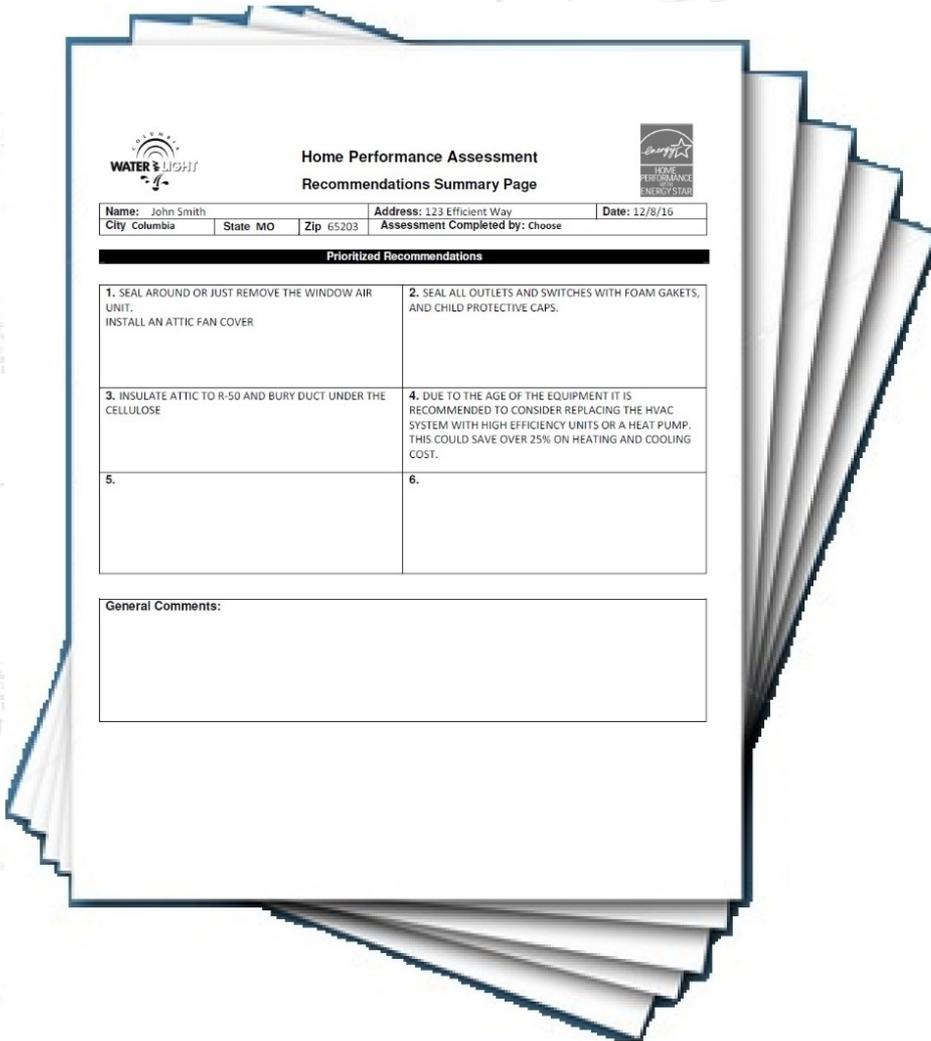
Since 2007

Rebates for home improvements



Type of Improvements	Minimum Requirement	Rebate Max
Attic Slope	Fill cavity	\$500
Attic Insulation	R-50	
Duct Insulation	R-13	\$300
Duct Leakage	50 CFM	\$300
Rim joist	R-13	\$20
Air Sealing	0.5 ACH50	\$420
Wall	R-13	\$500
Floor over	R-19	\$500
Crawl space wall	R-10	\$500
Windows and Doors	Low E and $\leq .30$ U Value	\$500
Heat Pump	15 SEER	\$200
		\$1200 Max

Pre Assessment – 5 page report



Energy Consumption History

Month	Year	Electric	Fossil
		kWh	Units ccf
Jan.	2016	705	121
Feb.	2016	561	127
Mar.	2016	538	87
Apr.	2016	679	58
May	2016	600	14
Jun.	2016	1881	17
Jul.	2016	2947	12
Aug.	2016	2151	12
Sept.	2016	3527	13
Oct.	2016	1056	12
Nov.	2016	969	16
Dec.	2015	511	79
Base		525	13
Cooling:	9610	Heating:	407
Cost:	\$1057	Cost:	\$407

Post Assessment



Columbia Water and Light Post Assessment Form



Inspection Date 1/26/2017

Account # 123456

Customer Name Smith John
Address 123 Efficient Way
Phone # 555-1234
Rental Loan No Yes

Home Performance Analyst
Choose

Type of Improvements	Minimum Requirement	Pre	Post	% of Total Improved	Savings	Ft ² Improved	Rebate \$	Rebate Max
Attic Slope	R-10	0	10	0%	0.00%	0	\$0.00	
Attic 1 Insulation	R-38	25	50	100%	9.50%	1601	\$400.25	\$500
Attic 2 Insulation	R-38	0	38	0%	0.00%	0	\$0.00	
Duct Insulation	R-13	0	13	25%	2.50%		\$75.00	\$300
Duct Leakage (in CFM)	50 CFM change min	0	0		0.00%		\$0.00	\$300
Rim joist	R-13	0	0	0%	0.00%		\$0.00	\$20
ACHn		0.3	0.3		2.84%		\$59.64	\$420
ACH50		7.24	6.53					
Wall 1	R-13	0	13	0%	0.00%	0	\$0.00	
Wall 2	R-13	0	13	0%	0.00%	0	\$0.00	\$500
Floor over unconditioned	R-19	0	19	0%	0.00%	0	\$0.00	\$500
Crawl space wall	R-10	0	10	0%	0.00%	0	\$0.00	\$500
Windows & Doors		Total # openings		# Replaced	Savings		Rebate	
Low E and ≤30 U Value		0		0	0%		\$0.00	\$500
HVAC Fuel	Home Type	Old HVAC		New HVAC		Savings	Rebate	
Gas	Gas_crawl space	_10SEER_w_80percent_		_95% 17SEER		22.77%	\$0.00	\$200
								\$1200 Max
Estimated Total Savings				33.79%			\$535	Rebate Total

Copy of Receipts	yes
Mechanical Permit	yes
Mechanical Inspection	yes

Old HVAC	Brand	Model	New HVAC	Brand	Model
AC	Goodman	CKL30-1L	AC	Lennox	SL18XC1-030-230A01
Coil	Goodman	EPD30B15C2	Coil	Lennox	CX35-36B-6F-1
Furnace	Goodman	N8MPN075B12A1	Furnace	Lennox	EL296UH070XV36B-07
SEER		10	SEER		17

Estimated Total Savings	33.79%	\$535	Rebate Total
-------------------------	---------------	--------------	--------------

Heating and cooling savings

- Derived from HERS modeling

Pre and Post HEScore – Since 2012

Better Buildings
U.S. DEPARTMENT OF ENERGY

Missouri Home Energy Score

123 Efficient Way
Columbia MO 65201

SCORE TODAY **5**

Home Energy Score
The U.S. Department of Energy's Home Energy Score assesses the energy efficiency of a home based on its structure, heating, cooling, and hot water systems. For more information visit HomeEnergyScore.gov.

Higher energy use | 1 | 2 | 3 | 4 | **5** | 6 | 7 | 8 | **9** | 10 | Lower energy use

MO Average Home Score

SCORE TODAY | SCORE WITH IMPROVEMENTS

This Home...

 CURRENTLY WASTES 29% <small>OF ENERGY ON INEFFICIENCIES</small>	 COULD SAVE \$319 <small>EACH YEAR ON ENERGY COSTS</small>	 COULD ELIMINATE 19% <small>OF CO2 EMISSIONS WITH COST-EFFECTIVE UPGRADES</small>
---	---	--

Page 1 of 6 ASSESSMENT: Official | Dec 08, 2016 | ID# 136398

Columbia Water & Light **Boone Electric Cooperative** **U.S. DEPARTMENT OF ENERGY**

Better Buildings
U.S. DEPARTMENT OF ENERGY

Missouri Home Energy Score

123 Efficient Way
Columbia MO 65201

SCORE TODAY **8**

Home Energy Score
The U.S. Department of Energy's Home Energy Score assesses the energy efficiency of a home based on its structure, heating, cooling, and hot water systems. For more information visit HomeEnergyScore.gov.

Higher energy use | 1 | 2 | 3 | 4 | 5 | 6 | 7 | **8** | **9** | 10 | Lower energy use

MO Average Home Score

SCORE TODAY | SCORE WITH IMPROVEMENTS

This Home...

 CURRENTLY WASTES 19% <small>OF ENERGY ON INEFFICIENCIES</small>	 COULD SAVE \$148 <small>EACH YEAR ON ENERGY COSTS</small>	 COULD ELIMINATE 11% <small>OF CO2 EMISSIONS WITH COST-EFFECTIVE UPGRADES</small>
---	---	--

Page 1 of 6 ASSESSMENT: Official | Jan 26, 2017 | ID# 141751

Columbia Water & Light **Boone Electric Cooperative** **U.S. DEPARTMENT OF ENERGY**

Easy add-on

Our HPwES program requires contractors to perform Home Energy Score (Pre and Post)

Contractors supply the score for free

- We already pay up to \$500 for the Pre and Post HPwES Assessment.

Contractors were already gathering the info.

After a few hours of training, contractors enter data to score homes in less than 5 minutes online.

Software and Integration

HOME PERFORMANCE WITH ENERGY STAR

Columbia Water & Light
rebate and loan program eligibility and status

[Main](#) | [Back](#)

Customer: JOHN SMITH
Service Address: 123 EFFICIENT WAY
HPA ID:101

- Energy Savings Calculator
- Printing
- Uploads
- Electric Usage
- Homeowner Interview and Consumption History
- Recommendations Summary
- Building Information
- Combustion Equipment/Appliance Testing
- Heating and Cooling
- Water Heater
- Appliances and Lighting
- Windows
- Doors
- Attic Insulation
- Ductwork
- Wall Insulation
- Basement/Crawl Space Insulation
- Air Leakage
- Sign Off

ColumbiaPowerPartners.com
info@ColumbiaPowerPartners.com
573-874-7325

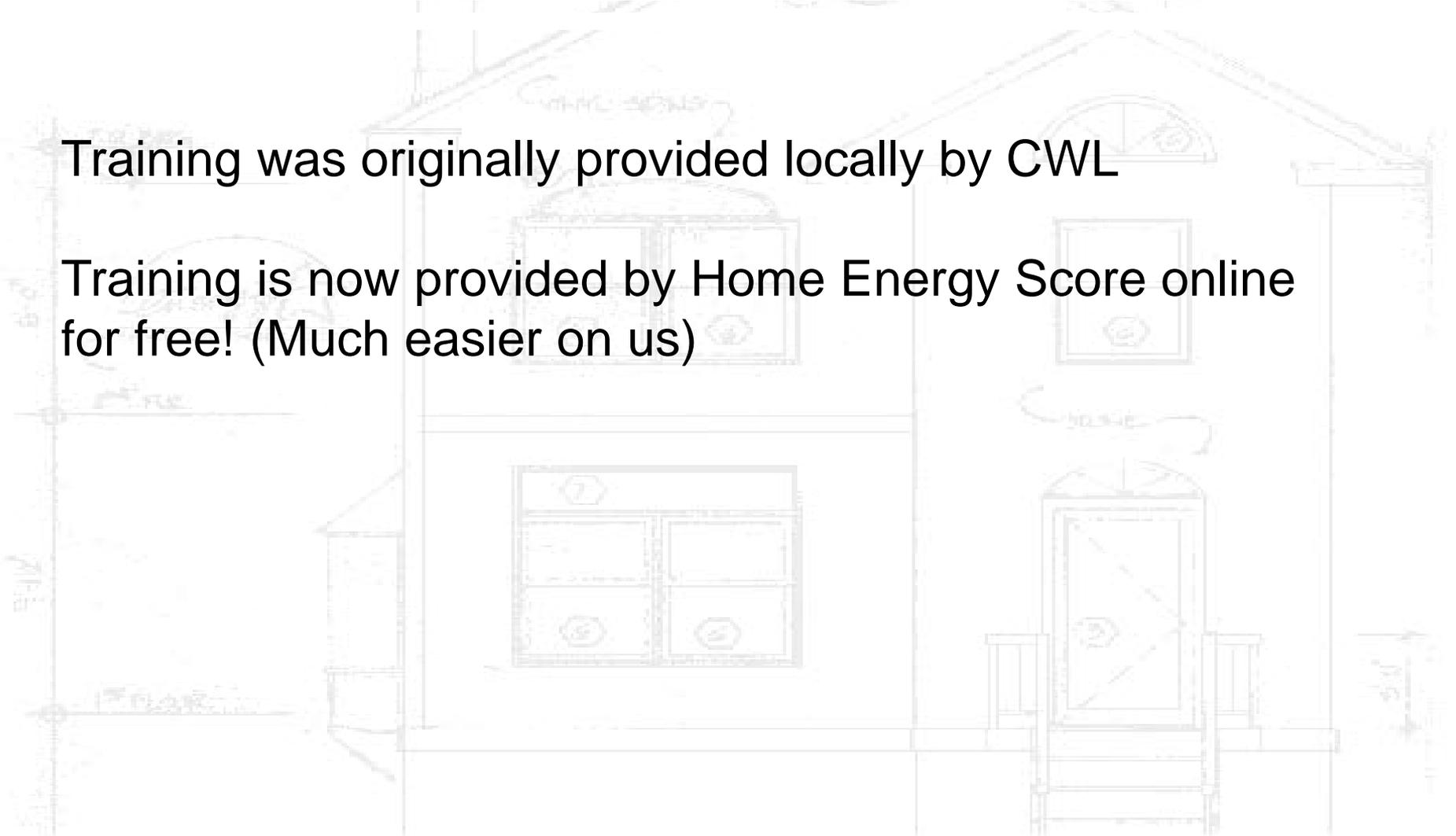
Input and tracking software, built in-house

Future API with Home Energy Score to reduce double data input

Training

Training was originally provided locally by CWL

Training is now provided by Home Energy Score online for free! (Much easier on us)



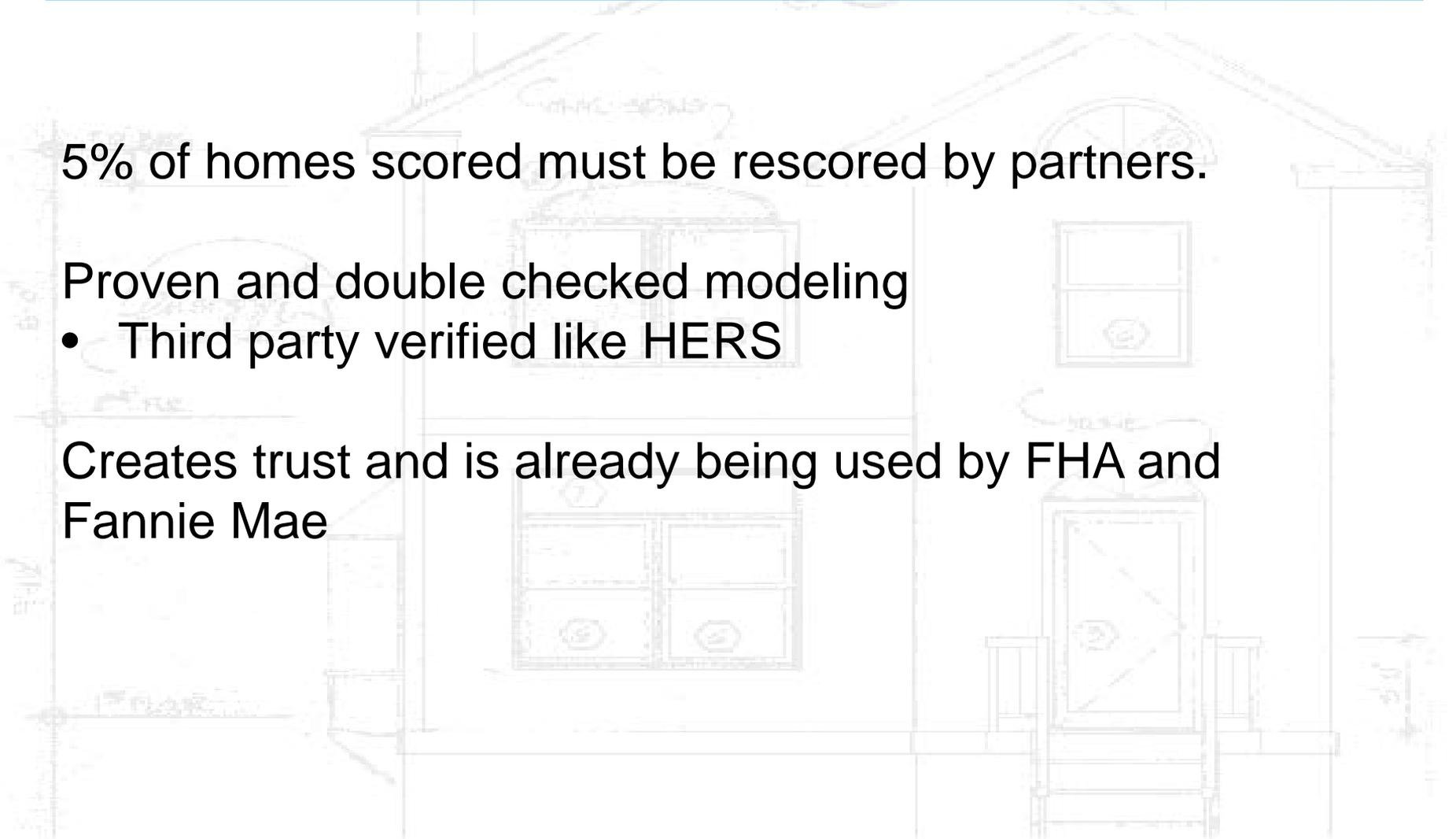
QA = Reliability and Credibility

5% of homes scored must be rescored by partners.

Proven and double checked modeling

- Third party verified like HERS

Creates trust and is already being used by FHA and Fannie Mae



Verify Program Energy Savings

The screenshot shows a web browser window with the URL https://hescore.labworks.org/partner/data_export. The page header includes the U.S. Department of Energy logo and the text 'Energy Efficiency & Renewable Energy'. Below this is a green banner with the text 'Home Energy Scoring Tool'. The main content area is divided into two sections. The top section, titled 'Start a New Session', contains input fields for 'Address', 'City', 'State' (a dropdown menu), 'Zip code', and 'Assessment type' (a dropdown menu). There is a 'Validate Address' button below these fields. To the right of these fields are 'Start Date' and 'End Date' (both dropdown menus) and an 'Export' button. The bottom section, titled 'Tools', contains a list of links: 'Data Collection Sheet', 'About the Home Energy Score Program', 'Sample Label', 'Open Legacy Buildings', 'Open Label Archive', 'Admin Tool', and 'Partner Data Export'.

Partner data
export

Very helpful

Real Estate

BSP training for realtors (Home Energy Score included)

Create Home Energy Score saturation

Prepare for Point of Sale awareness

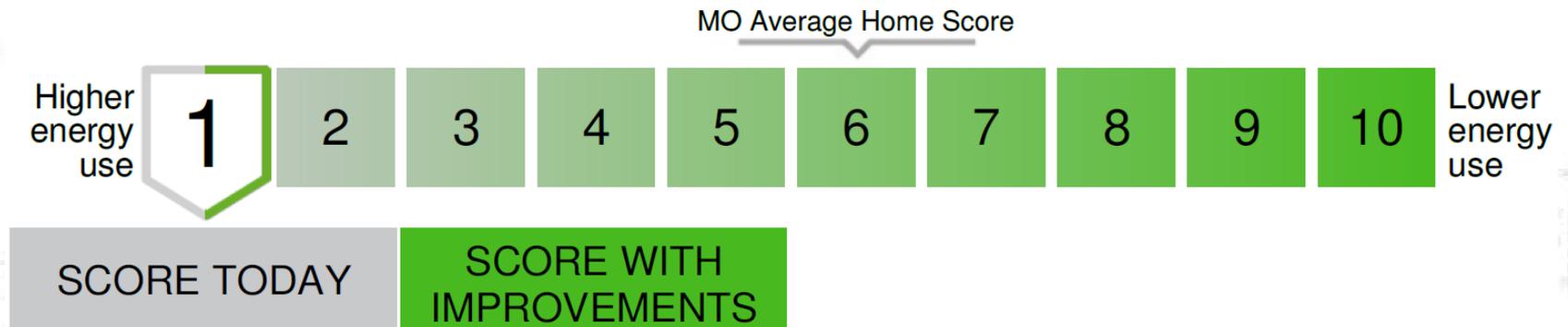
Working towards Green MLS tie-in

- Third Party Verified

Understanding HEScore

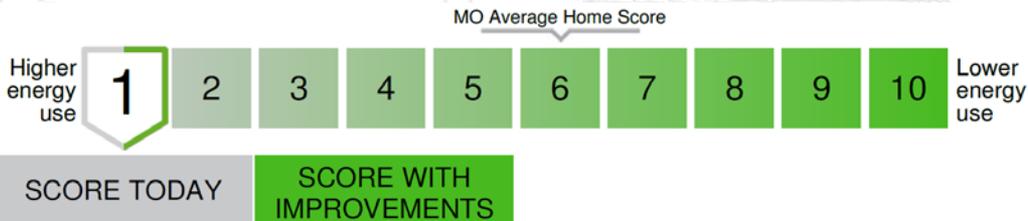
Great miles per gallon type rating....*but*

- Some don't think it's good to score less than a 10
- People don't get excited about low scoring homes
- Home that score 1 of 1 can be an issue



Efficiency Score

Compares Mbtu of Score Today and Score with Improvements



Columbia Water & Light's **EFFICIENCY SCORE**

90%



ESTIMATED ANNUAL ENERGY COSTS

\$1,225-\$1,658

ADDRESS 123 Efficiency Way

HOME SIZE (square foot) 1601

YEAR BUILT 2003

ASSESSMENT DATE 1/27/2017

Columbia Water & Light's Efficiency Score indicates the percentage of a home's maximum energy efficiency potential as modeled by the U.S. Department of Energy's Home Energy Score. The maximum energy efficiency is based on recommendations that provide a 10-year payback or less. Annual energy cost is based on equipment efficiency, size of home and number of bedrooms. The actual costs may vary due to weather, shading, occupant behavior, number of occupants and home maintenance.

(573) 874-7325

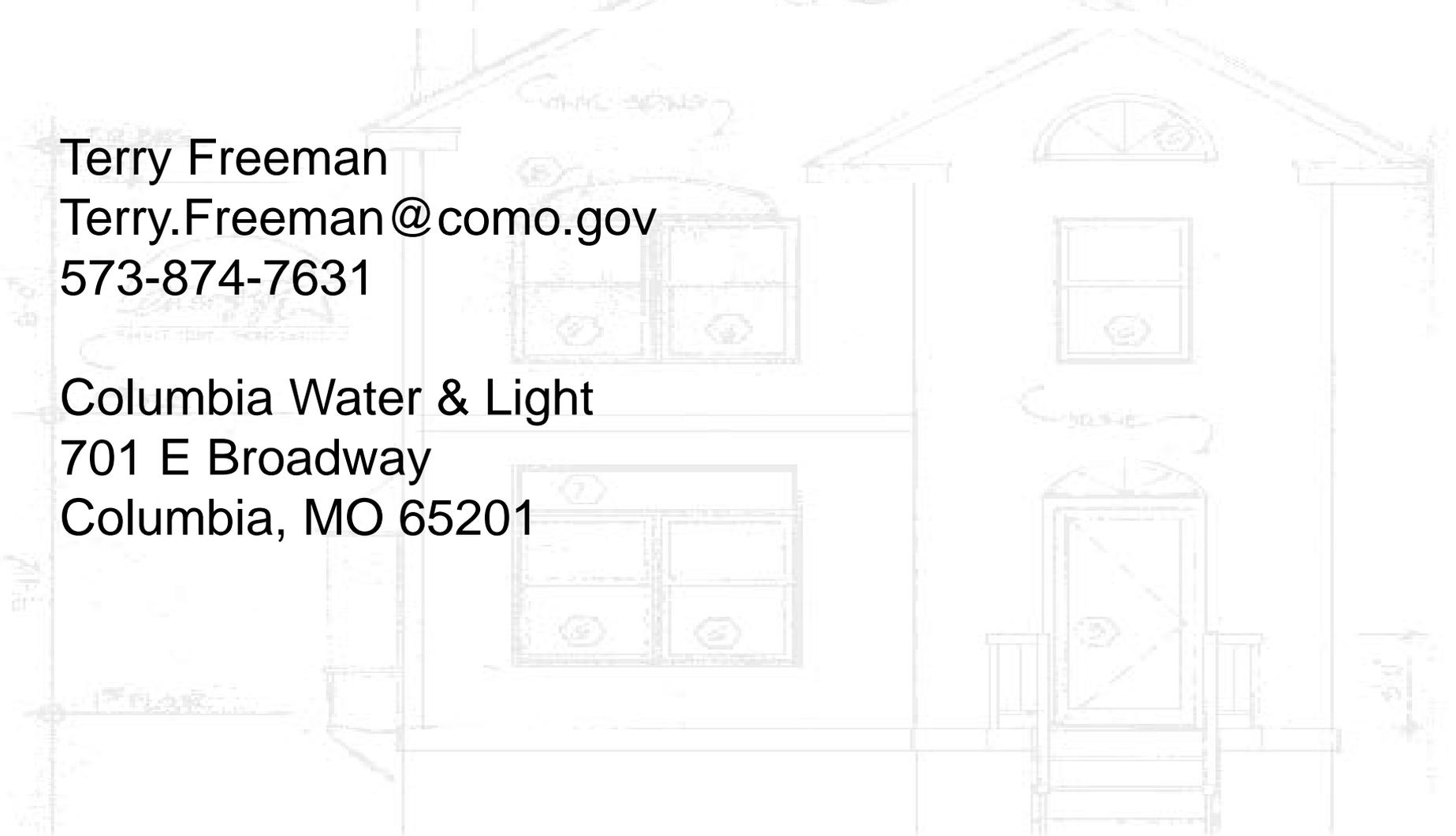
ColumbiaPowerPartners.com



Contact

Terry Freeman
Terry.Freeman@como.gov
573-874-7631

Columbia Water & Light
701 E Broadway
Columbia, MO 65201



Who's Keeping Score?

Connecticut's Integration of Home Energy Score with HPwES

Elizabeth Murphy

Energize Connecticut

- Statewide initiative which helps consumers reduce their energy bills, save money, and reduce their carbon footprint
- A partnership of the Energy Efficiency Fund, the Connecticut Green Bank, Department of Energy and Environmental Protection (“DEEP”) and local electric and gas utilities
- Funded by a charge on customer electric and natural gas bills

Home Energy Solutions (HES)

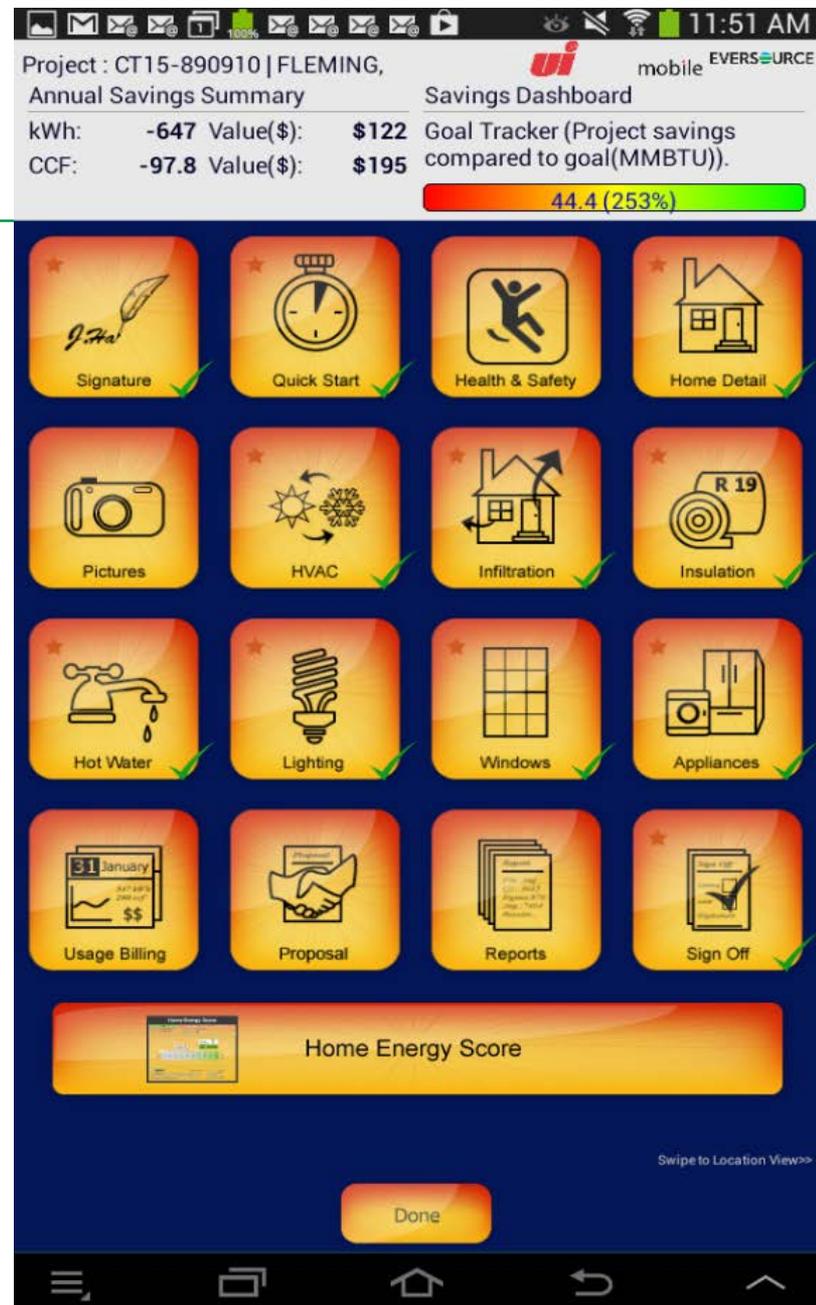
- HPwES program offering direct-install energy efficiency products and services for single family (1-4 units) homes
- Comprehensive energy assessment for low co-pay
- BPI certified technician:
 - Addresses all energy-saving opportunities
 - Generates Home Energy Score
 - Qualifies home for add-on measure rebates
 - Reviews financing options

Home Energy Score Integration

- Connecticut was first statewide implementer in April 2015
 - Over 20,000 scores generated to date!
- Home Energy Score is a feature of all HES assessments in qualifying homes
- All HES lead technicians are required to be Assessors
 - More than 200 active Assessors

HES Mobile Tool

- Customized Android app for tablet or cell phone
- Streamlines data collection for HES and score
- Models savings based on usage
- E-mails comprehensive report to customer while onsite, including Home Energy Score report with recommendations



Benefits of the Home Energy Score

- Customized report reinforces the importance of completing energy upgrades
- The “miles per gallon” is an easy explanation to help educate customers on their homes energy usage
- Helps provide the customer with a road map for their energy projects and shows them their potential improved score with savings

Engagement with Solar Industry

- 2017 Coffee and... matchmaking events designed to integrate energy efficiency and solar
- Promoted Home Energy Score to solar and home improvement contractors
- Announced that solar will be incorporated within score in 2017

Connecticut Green Bank now accepting the Home Energy Score!

- Green Bank adopted the Home Energy Score as an option for homeowners to meet the energy audit requirement
- Home Energy Score report is preferred proof of participation in HES to access financing and incentives

Engagement with Real Estate Community

- Educate realtors to understand value of energy efficiency
- Educate customers
 - Improve understanding of how energy improvements affect home performance
 - Showcase ability to compare homes when buying
- Incorporate MLS autosharing language into customer release



Empowering you to make
smart energy choices

**For more info on Connecticut's
program visit:**

EnergizeCT.com/HES

EnergizeCT.com/DOEHomeEnergyScore



focus on energysm

Partnering with Wisconsin utilities

Who's Keeping Score?

Using Home Performance with ENERGY STAR[®] and Home Energy Score together.

Scott Bloedorn

Intro

Focus on Energy is Wisconsin utilities' statewide energy efficiency and renewable resource program. Since 2001, the program has worked with eligible Wisconsin residents and businesses to install cost-effective energy efficiency and renewable energy projects.

Background

- Home Performance with ENERGY STAR®
 - Since early 2000's
 - Annually (2011 – current): 1,500 – 2,300 projects
 - Combines: income & non-income qualified projects
- Home Energy Score
 - Pilot: 2014 & 2015
 - Direct install program (Express Energy Efficiency)
 - 1,000 HES assessments

Home Performance - Barriers to Scale (2014 & 2015)

- Budget
 - Is the customer able to financially invest?
- Timing
 - Is this the right time or does the customer have another goal?
- Access
 - Can the customer find a HPwES Trade Ally?
 - Does the customer know about Focus on Energy?

Barriers continued....

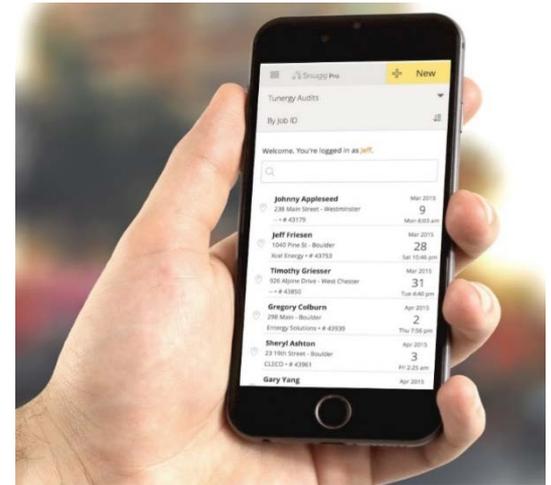
- Willingness
 - Does the customer want to invest the time, money?
- Too complex
 - Does the customer want a simplified process?
- Qualified Leads for Trade Allies
 - Less time performing assessments, qualifying customers.

Step #1 - 2016

- Rebid Home Performance Program
 - Assessment software – Snugg Pro
- Developed HES training – 8 hours
 - Offered incentive – free tablet
 - Over 95% success, 40 Trade Allies
- Scoring - 2017
 - Contractual KPI – 67% of assessments include HES
 - Integrate HES into Certificate of Completion (COC)
 - Add 'look-up' for Trade Allies

Step #2 - 2017

- Develop Self-Sustaining Home Energy Score
 - PSC, Office of Innovation, DOE, others...
- Develop standalone HES assessment
- Engage stakeholders
- Drive more HES assessments
- Qualified HPwES leads



Step #3 – Self-Sustaining Model

- Non-Home Performance Trade Allies & Contractors
 - Lower cost for training
 - attendees cover the cost
 - Upon HES certification
 - Access to scoring tool, listed on website
 - 5 HES
 - Purchase additional HES
 - \$500/20 HES; ability to earn \$1,500

Why - Self-Sustaining Model?

- Answer basic questions (Customers)
 - Lower investment for customers
 - Simplified report – easier to understand
- More Assessments (Program & Trade Allies)
 - Better market data
 - Analytics to target offers
- Stakeholder Engagement (Utilities & PSC)
 - New participants

Next Steps

- Continue planning & implementation processes
 - HPwES TA meeting – value proposition
 - Stakeholder outreach & training
- Weatherization
 - Qualifying customers (WI)
 - Can we share software?
- Workforce Development?
 - Apply for funding (grants)
- Public portal? (2018) – real estate market

Contact Info



Scott Bloedorn
Scott.bloedorn@cbi.com

Who's Keeping Score?

Better Buildings Summit
May 2017



High Performance Homes: Benefits for Today and Tomorrow



What are the Benefits of a High Performance Home?



Cost less to heat
and cool



Are more
comfortable



Healthier for
their occupants

SOURCES: Energy Star, U.S. Department of Energy

March 2017



ELEVATE ENERGY
Smarter energy use for all



High Performance Homes can sell for a higher price and spend less time on the market.



A True Story

- Why are scores/certificates so important to the real estate transaction?



My Home Performance with ENERGY STAR Story



My Home Performance with ENERGY STAR Story



My Home Performance with ENERGY STAR Story

Before Massive
Energy Efficiency
Retrofits



After Massive
Energy Efficiency
Retrofits



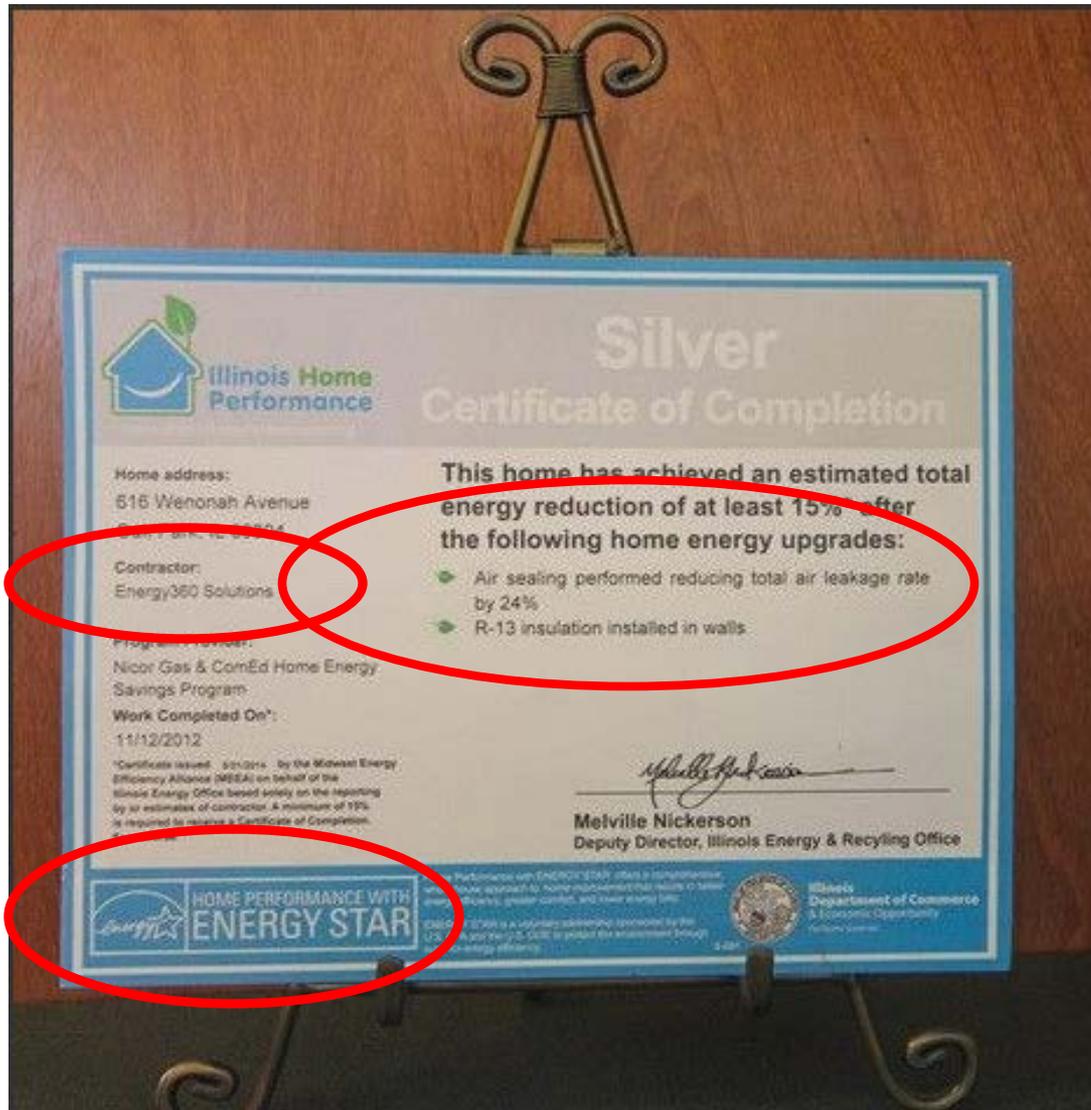
What in the world...



A Certificate to the Rescue

**Contractor
Name**

**ENERGY
STAR
Logo**



**List of
Upgrades**



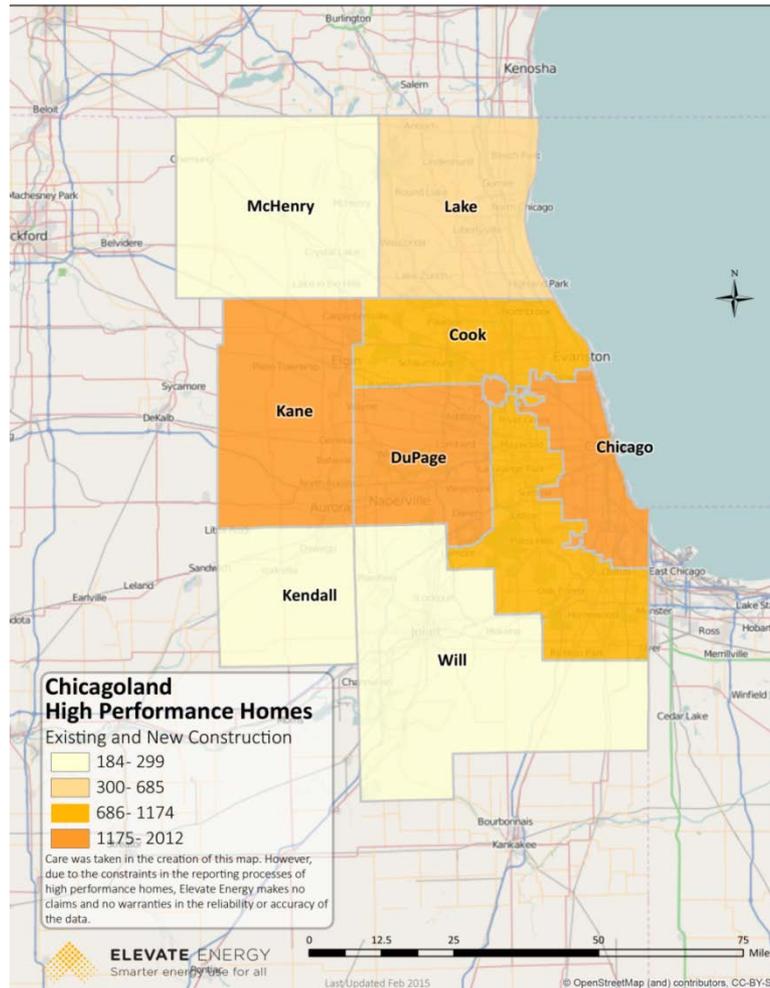
The Best Kept Secret



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.



Density Map and the Lone Wolf



Pamela Brookstein

Market Transformation Specialist

Pamela.Brookstein@elevateenergy.org

773-269-2220

ElevateEnergy.org/Value-High-Performance-Homes

