Home Energy Score: An affordable, reliable, easy way to understand homes' energy performance

GreenHome INSTITUTE

1 Hour – Continuing Education Units

- Since 2000
- Nearly 20,000 educated
- Over 7,000 homes green certified
- non-profit; mission:

GreenHome INSTITUTE

We exist to empower people to make healthier and more sustainable choices in the renovation and construction of the places we live.

GreenHomeInstitute.org

Do you support greener homes?

Benefits include

Supporting the growth of healthier and more sustainable homes

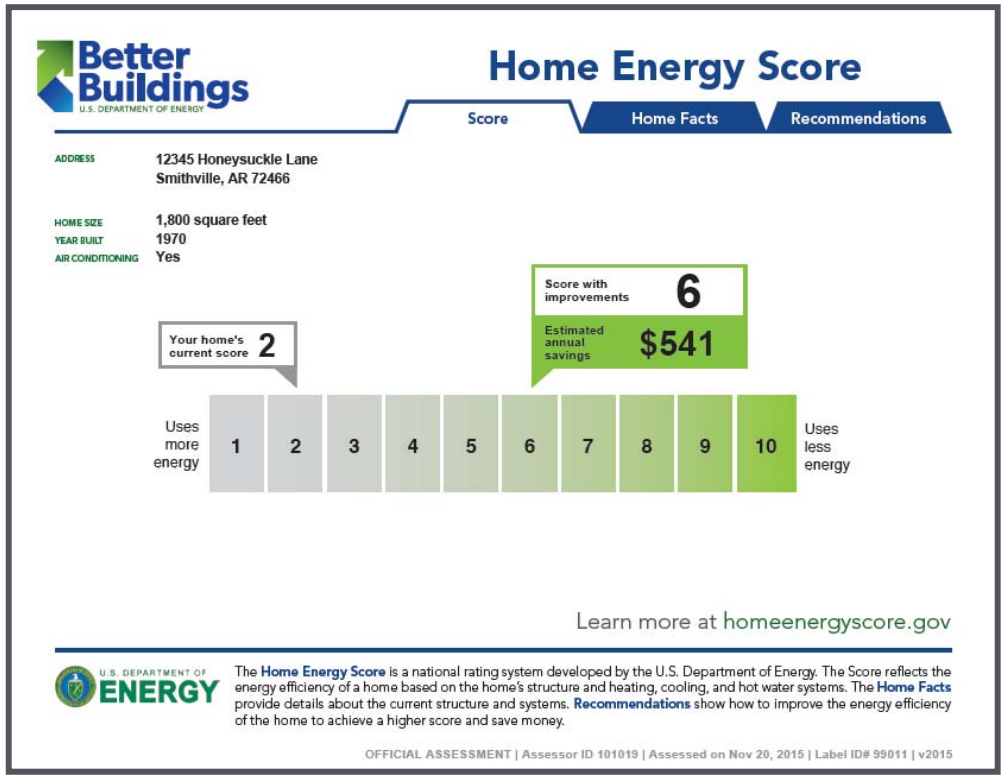
- ✓ Free or discounted webinar/local education and CEs
- ✓ Certified green projects & LEED Discounts
- ✓ & More!

GreenHome INSTITUTE MEMBER

greenhomeinstitute.org/get-involved/

GreenHome INSTITUTE

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy



U.S. Department of Energy's Home Energy Score

homeenergyscore@ee.doe.gov

Glenn Dickey &
Gannate Khowailed
CSRA

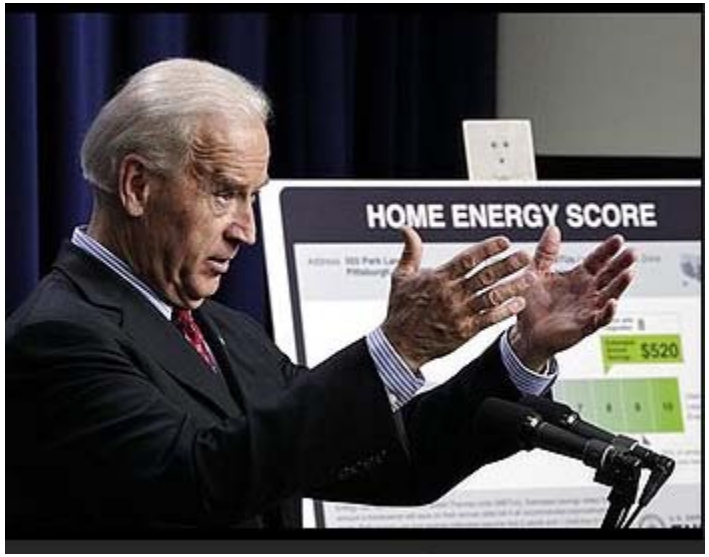
An "MPG" for Homes

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Home Energy Score: A key product of the Vice President's "Recovery through Retrofit" initiative

U.S. Department of Energy created nationally standardized "miles-per-gallon" home score

- ✓ Offers homeowners **affordable, reliable, easy way** to understand homes' energy performance
- ✓ Available at **no-cost** to program providers
- ✓ Intended to **motivate homeowners** to invest in residential energy efficiency
  - ✓ Simple and action-oriented
  - ✓ Ability to document investment in energy efficiency using the post-improvement score



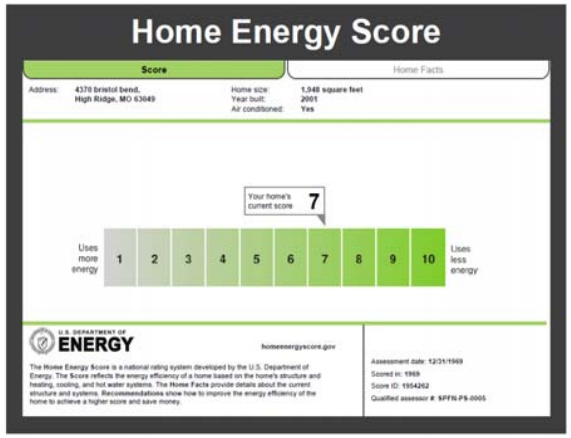
Home Energy Score website: www.homeenergyscore.gov

Value Proposition….Why Bother?

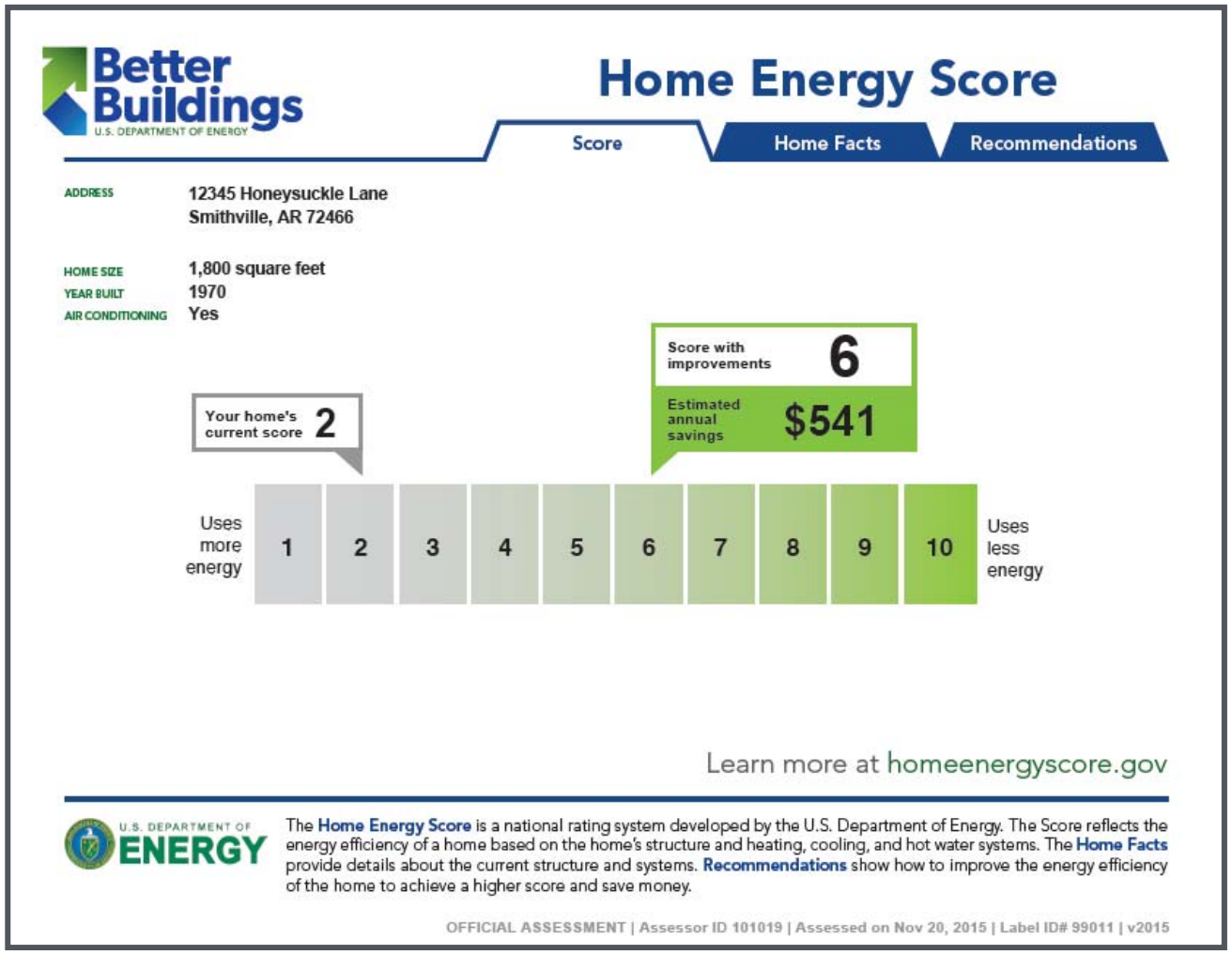
U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

The Score helps translate investment in energy efficiency into a tangible value.

- ✓ Homeowners and homebuyers understand it
- ✓ Easy to capture at point of sale
- ✓ Exposes “hidden” value: makes insulation and air sealing visible



Part 1: The Score

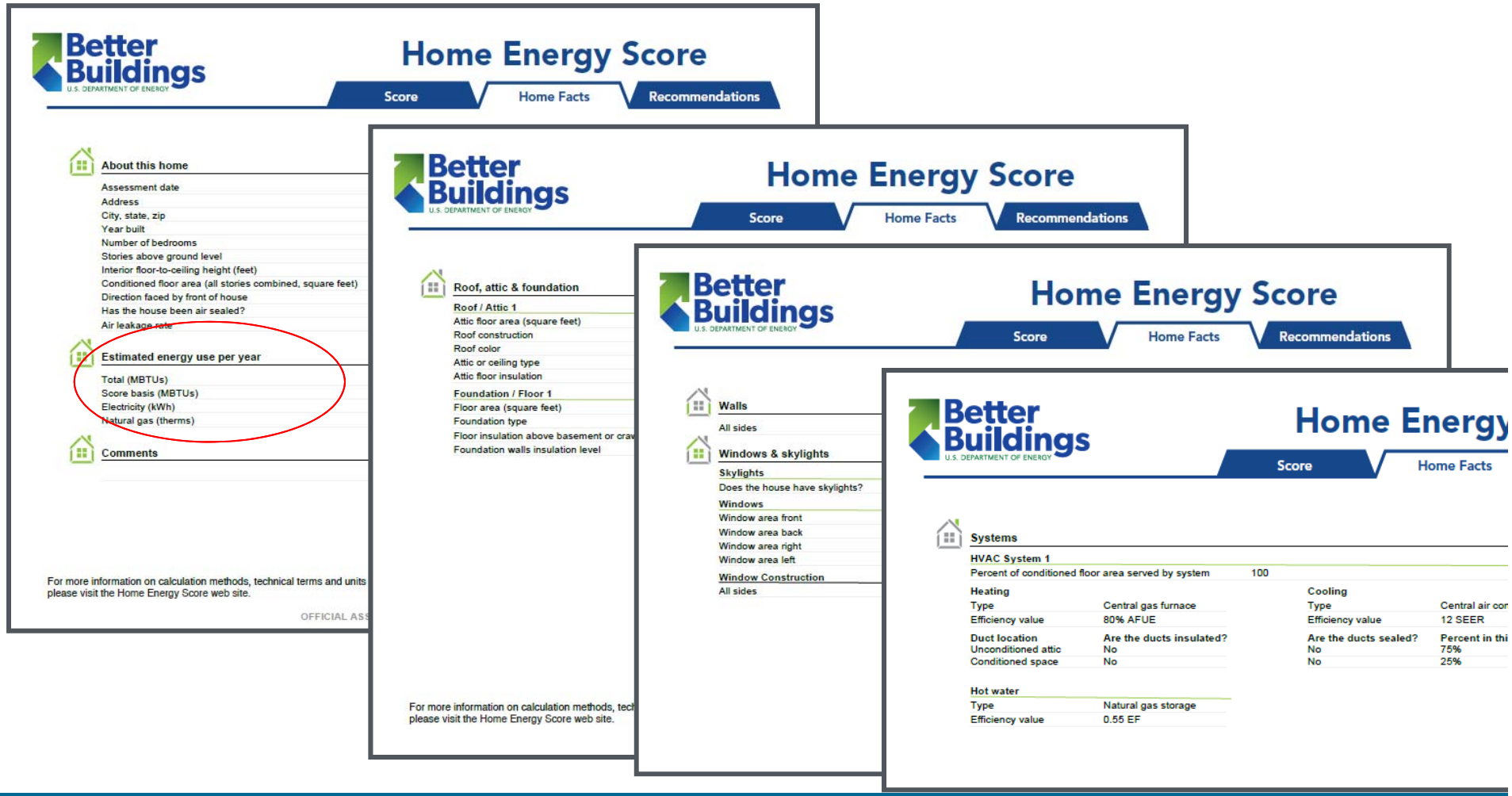


- Takes an hour or less to complete
- Can be generated by utilities, contractors, home inspectors, others
- On-line tool can be used directly or linked to other software tools
- No reporting requirements, all automated
- Free to user

Part 2: Home Facts

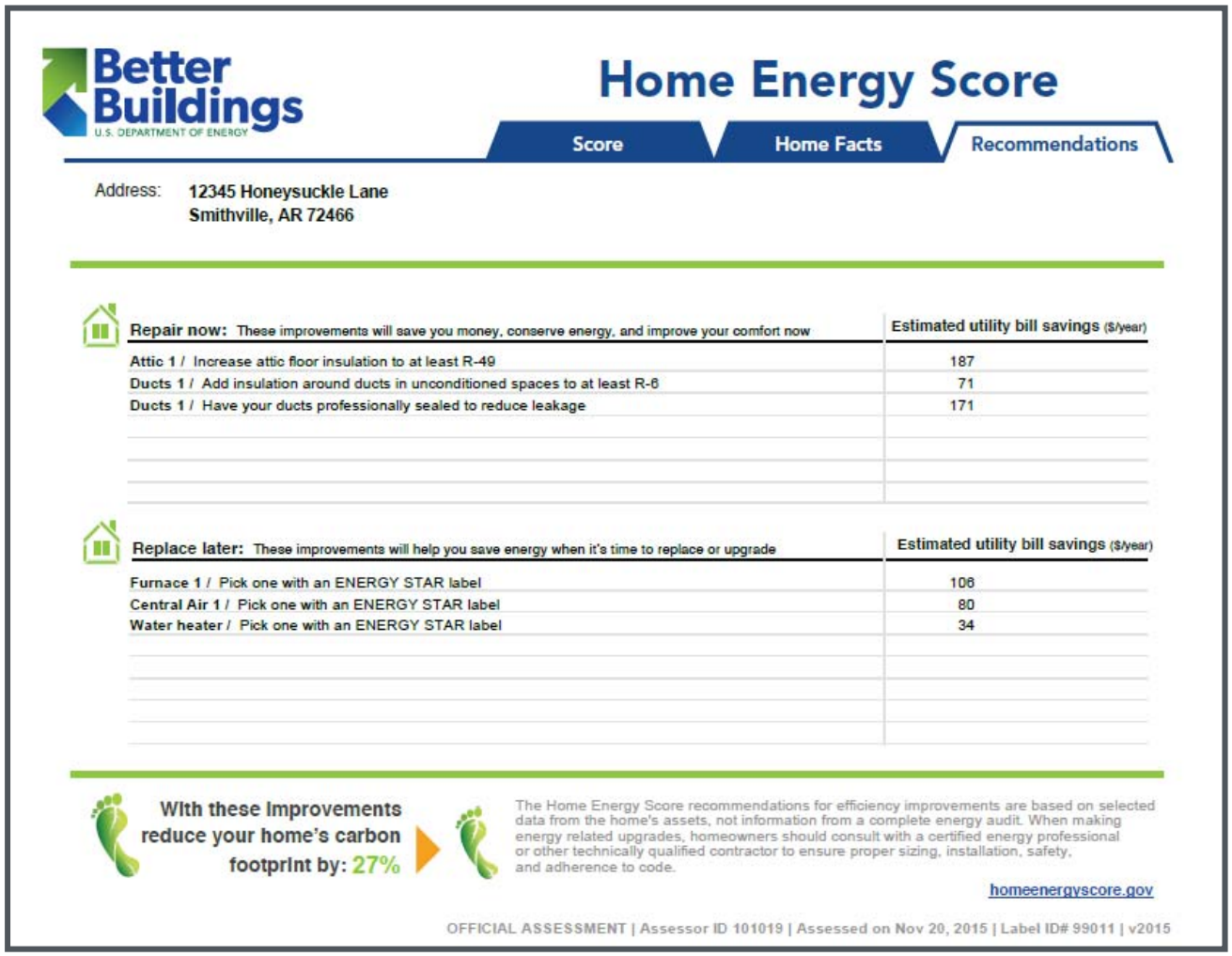
U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

"Home Facts" provides the inputs the assessor used and the Home Energy Scoring Tool's estimated energy use for the home, given standard conditions.



Part 3: Recommendations

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy



Better Buildings
U.S. DEPARTMENT OF ENERGY

Home Energy Score

Score | Home Facts | Recommendations

Address: 12345 Honeysuckle Lane
Smithville, AR 72466

Repair now: These improvements will save you money, conserve energy, and improve your comfort now	Estimated utility bill savings ($/year)
Attic 1 / Increase attic floor insulation to at least R-49	187
Ducts 1 / Add insulation around ducts in unconditioned spaces to at least R-6	71
Ducts 1 / Have your ducts professionally sealed to reduce leakage	171

Replace later: These improvements will help you save energy when it's time to replace or upgrade	Estimated utility bill savings ($/year)
Furnace 1 / Pick one with an ENERGY STAR label	106
Central Air 1 / Pick one with an ENERGY STAR label	80
Water heater / Pick one with an ENERGY STAR label	34

With these improvements reduce your home's carbon footprint by: 27%

The Home Energy Score recommendations for efficiency improvements are based on selected data from the home's assets, not information from a complete energy audit. When making energy related upgrades, homeowners should consult with a certified energy professional or other technically qualified contractor to ensure proper sizing, installation, safety, and adherence to code.

homeenergyscore.gov

OFFICIAL ASSESSMENT | Assessor ID 101019 | Assessed on Nov 20, 2015 | Label ID# 99011 | v2015

- Recommendations categorized as "Repair now" and "Replace later"
- Some Partners and Assessors provide their own recommendations
- Tool can generate "Upgrade Score" based on custom recommendations

Implementation Highlights

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

- ✓ More than 35,000 homes scored since 2012
- ✓ 275+ Active Assessors
- ✓ Score easily integrated into existing residential programs and other services
  - Simple data collection mechanism
  - Useful analytical tool for program administrators and utilities
- ✓ Homeowners understand the simple 1-10 scale
- ✓ Statewide adoption
  - CO, CT, MO, OR, VT with others exploring adoption (e.g. AL, AR, MA, NH, NY)
- ✓ Local governments using the Score in disclosure policies

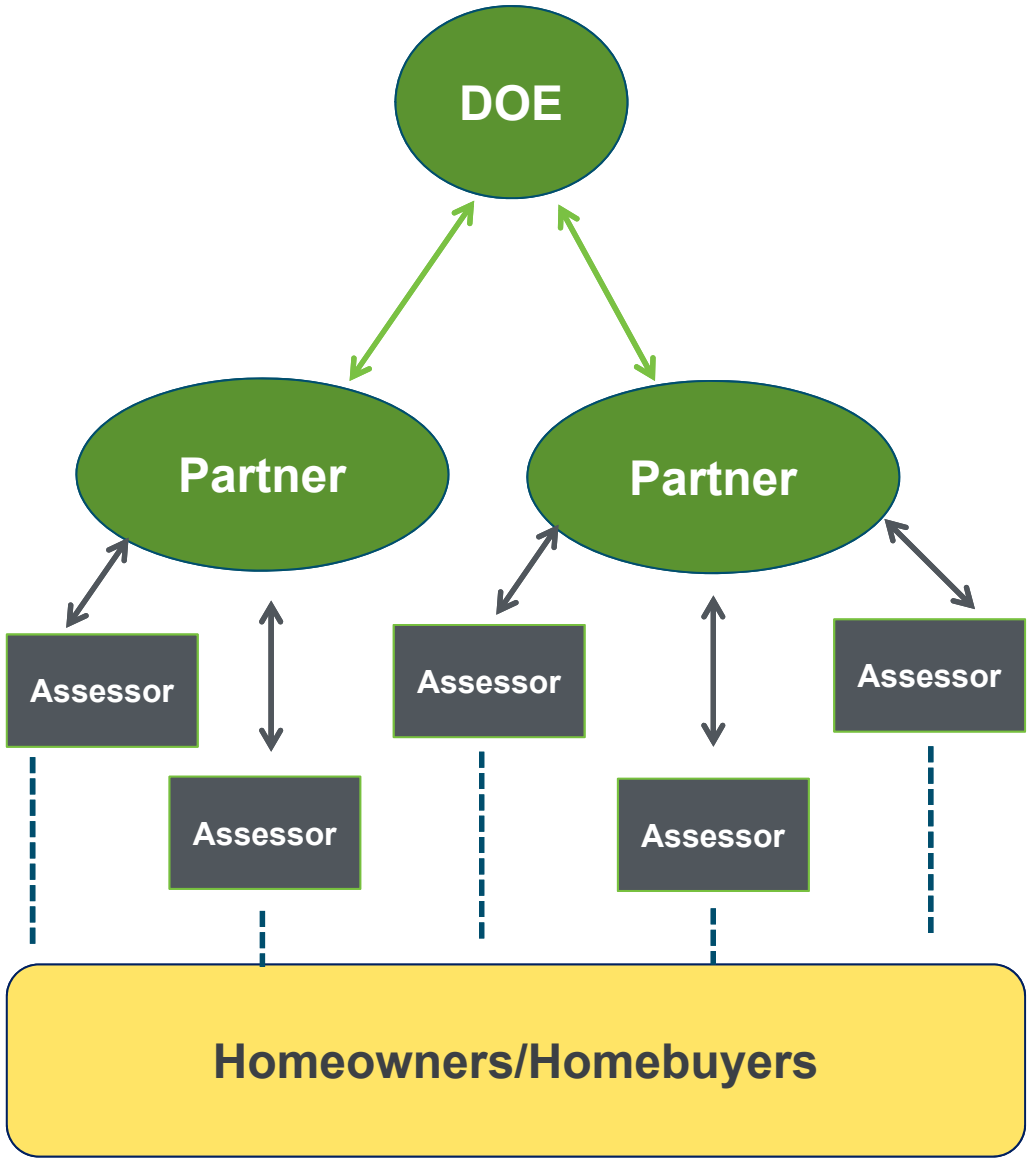
HOME ENERGY SCORES COMPLETED

34649

As of February 14, 2016

REALTOR® MULTIPLE LISTING SERVICES MLS®

Implementation Method



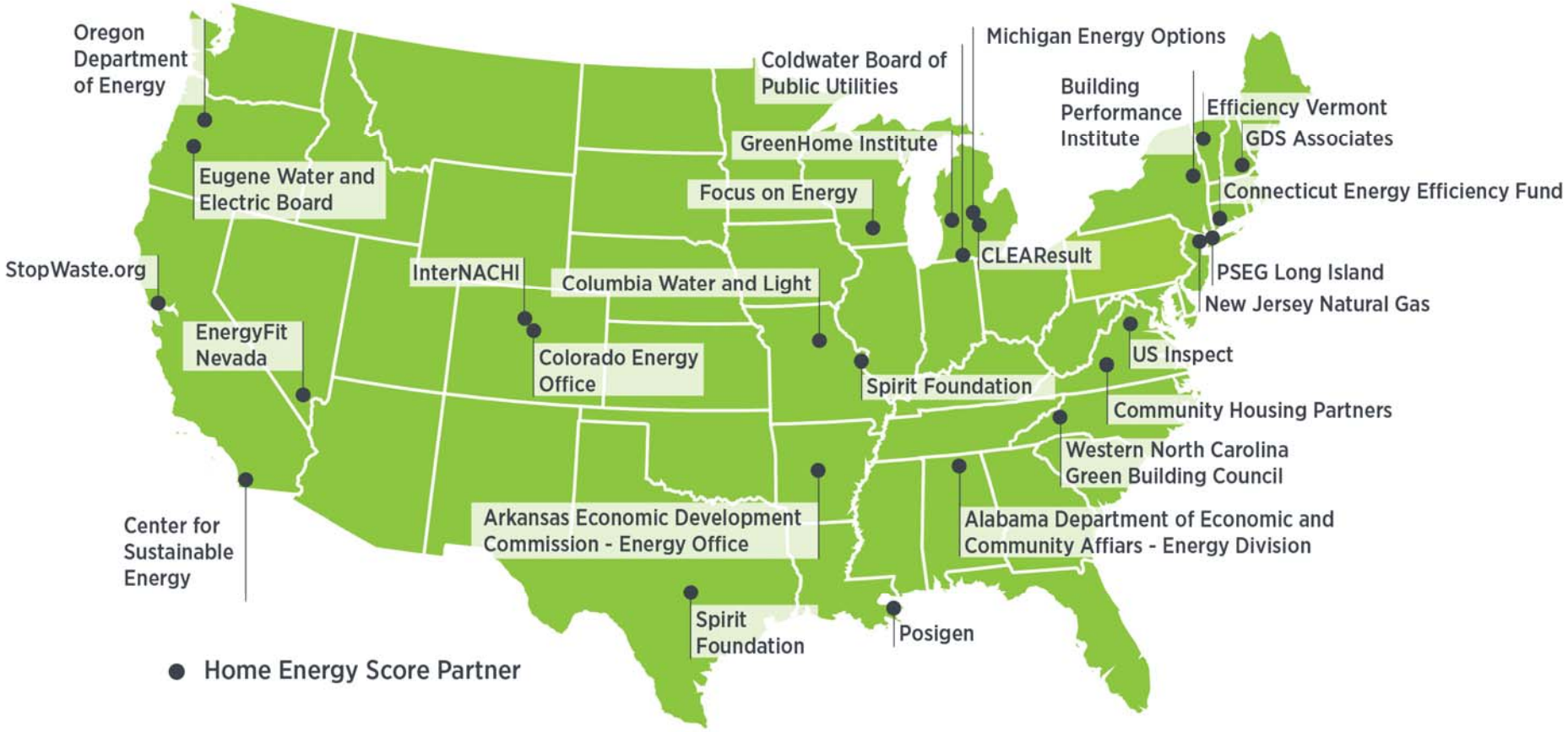
- Partners (states, utilities, large volume contractors, associations) determine how Score will be offered.
- Qualified Assessors working under the partners provide the score to homeowners and homebuyers
- Score can be provided through many avenues
  - ✓ Home Performance with ENERGY STAR
  - ✓ Direct Install programs
  - ✓ Utility rebate programs
  - ✓ Real estate transactions
  - ✓ And more…

Existing Partner network

As of November 2014

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Utilities **State and local governments** **Non-governmental organizations** **Home inspectors**

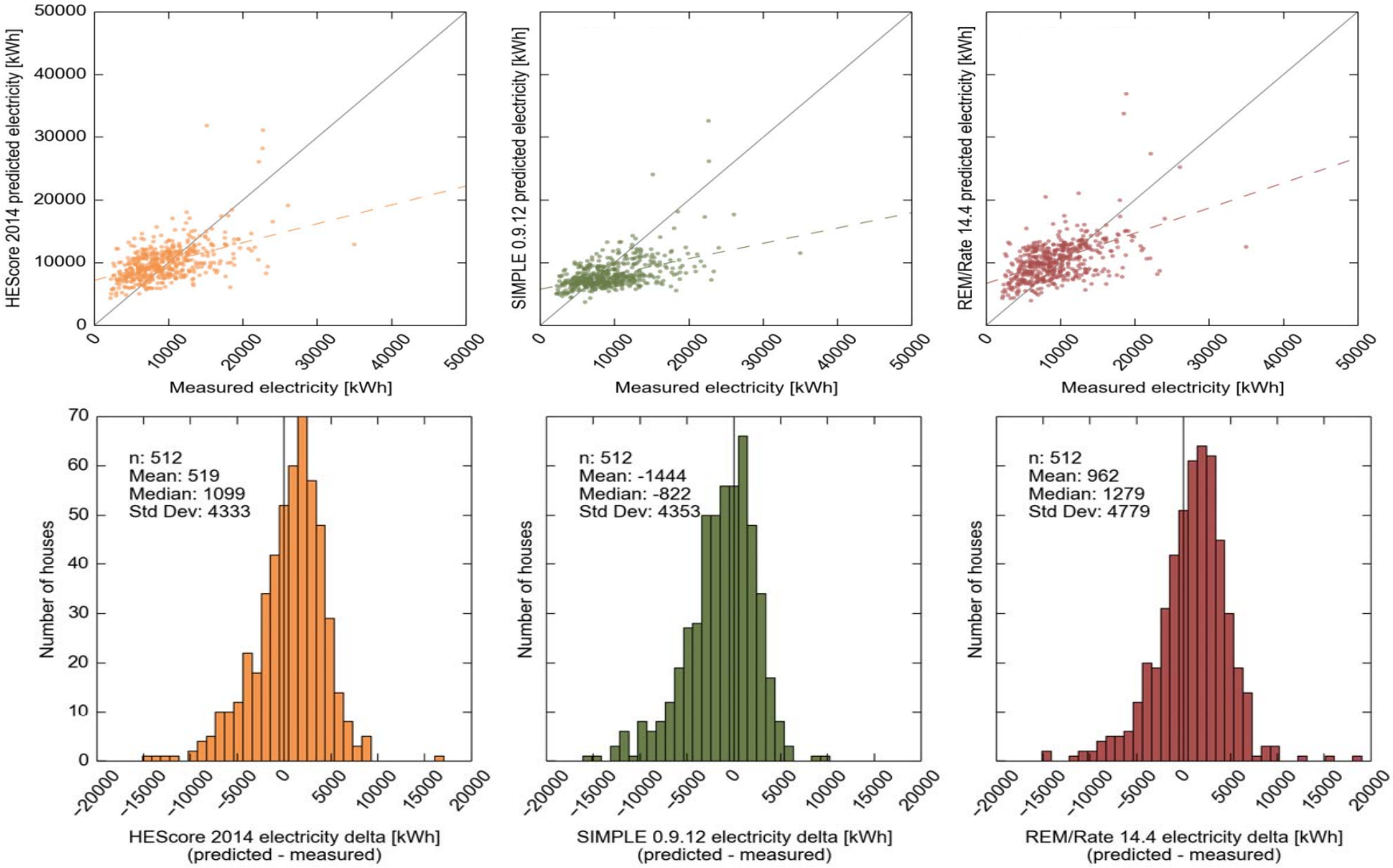


Home Energy Scoring Tool Demo

Relative Accuracy (Electricity)

Home Energy Score/SIMPLE 0.9.12/REM/Rate 14.4

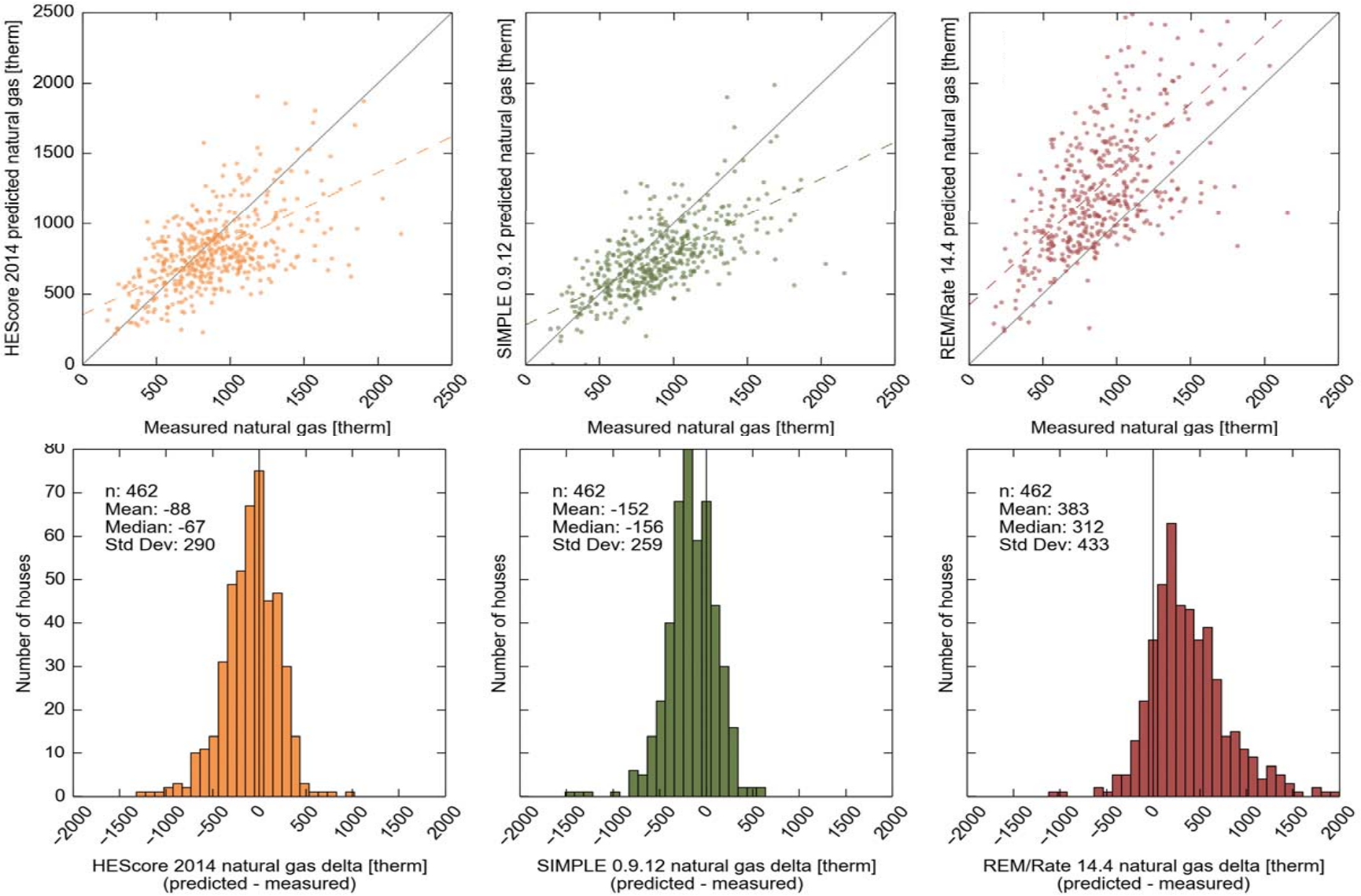
U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy



Relative Accuracy (Natural Gas)

Home Energy Score/SIMPLE 0.9.12/REM/Rate 14.4

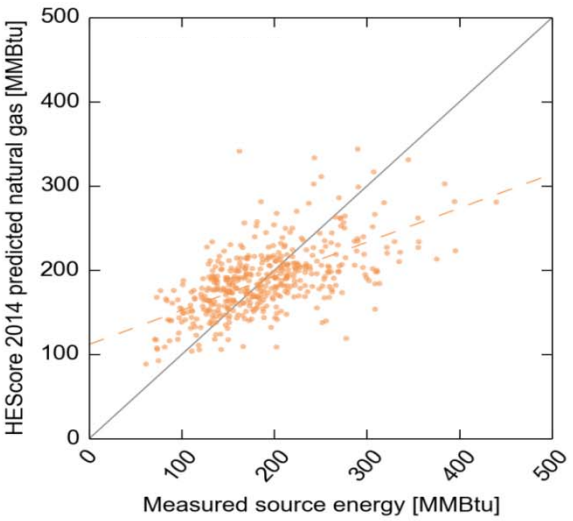
U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

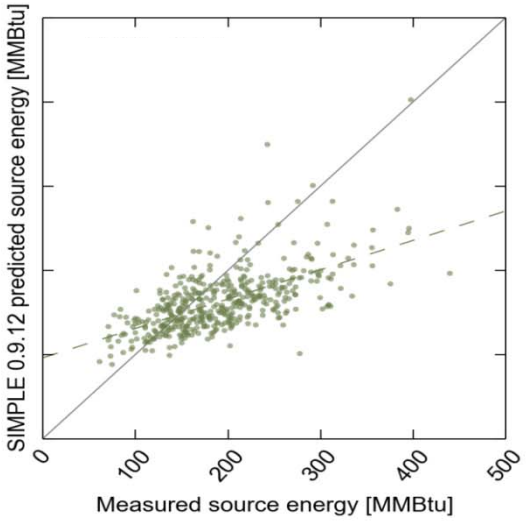


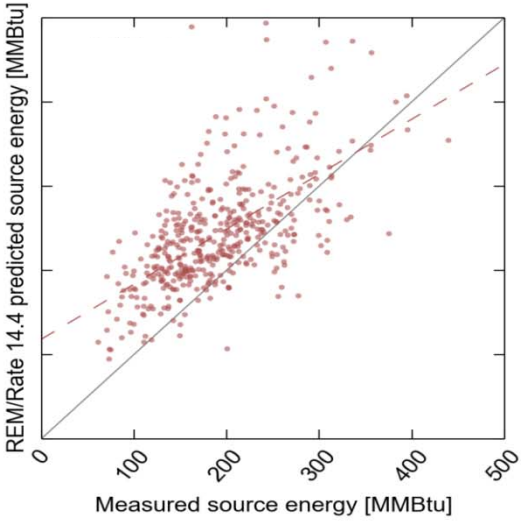
Relative Accuracy (Source Energy)

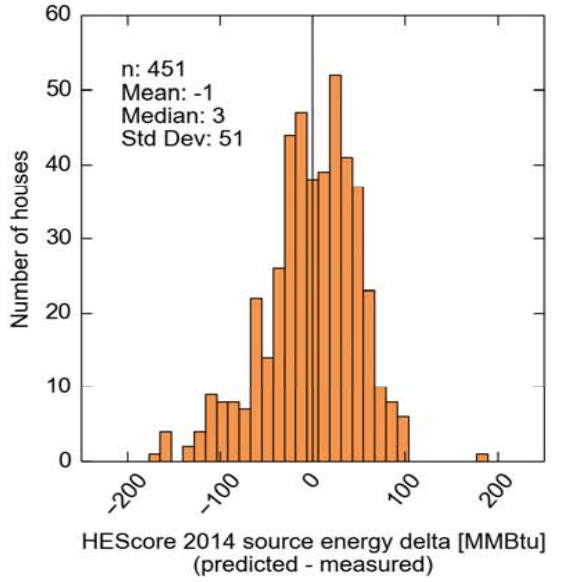
Home Energy Score/SIMPLE 0.9.12/REM/Rate 14.4

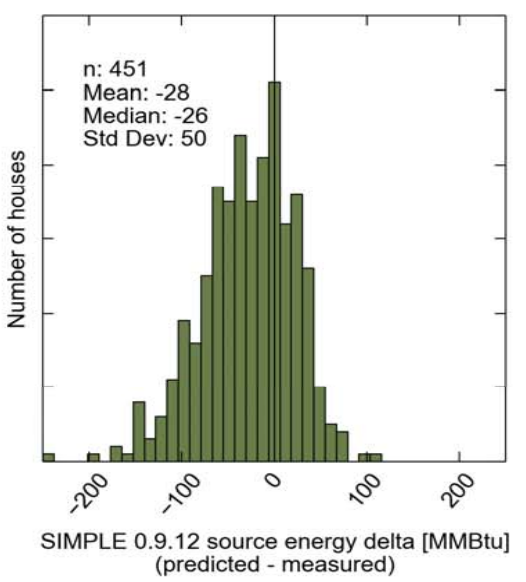
U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

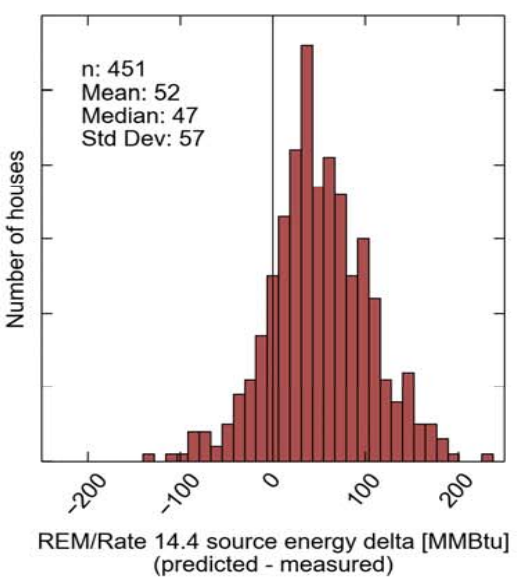












Application Programming Interface (API)

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

- ✓ Third-party software companies can license the Home Energy Score API to build applications that exchange data with the tool
  - ✓ Use API and avoid double data entry
- ✓ Software companies and organizations that completed API integration:
  - ✓ Cake Systems, EnergySavvy, EnergySoft, Home Inspector Pro, Optimizer, PSD/TREAT, United Illuminating, Spirit
- ✓ Other software companies evaluating or about to complete API integration
  - ✓ Snugg Pro, CLEAResult

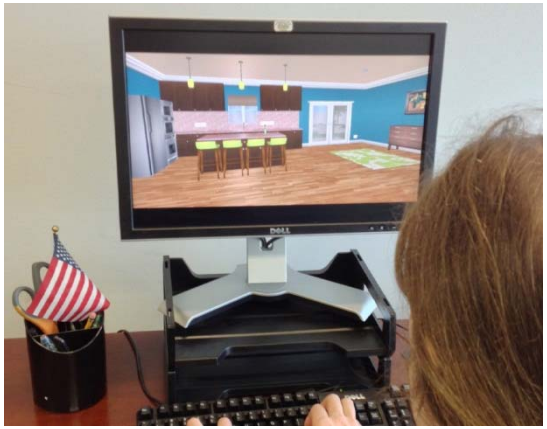
BERKELEY LAB

Images courtesy Richard Szydlowski, Minnesota Center for Energy and Environment

New Training and Testing Opens the Market to More Assessors

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

- ✓ This 3-D Tool developed with significant input from outside experts & practitioners.
  - Uses computer-based simulations to recreate a range of job-site scenarios.
- ✓ DOE conducted in-classroom/in-the-field validation study
  - Confirmed effectiveness of simulation tool in determining a candidate's competency to deliver the Home Energy Score.
- ✓ DOE recognizes certifications from many different building-related organizations.
- ✓ <u>As a result…Many more building professionals are now be able to offer the Score.</u>



3-D Simulation Demo

Assessor Requirements

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

	Qualification Requirements
Credentialing Pre-Requisites	Current credentials recognized by leading building-related industry organizations (e.g., ASHI, BPI, InterNACHI, NAHI, NARI, NATE, RESNET)
Practical Test	Candidate uses the Home Energy Score 3D Simulation Tool to retrieve home characteristic data and to score – Three “Practice/Challenge” Homes (80 or better) – Two Test Homes (90 or better)
Written Exam	Score of 80 or better on multiple choice test comprised of 20 questions covering the Home Energy Score program only
Quality Assurance	5% of homes must be rescored under a DOE approved quality assurance plan
Mentoring	First home scored with a mentor; counts toward quality assurance requirement. (Mentoring can be performed by either a QA appointee OR another Assessor with experience generating Home Energy Scores for at least 25 homes.)

Minimum Accepted Credentials

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Organization	Minimum Credential
American Society of Home Inspectors (ASHI)	ASHI Inspector or Certified Inspector
Building Performance Institute (BPI)	Building Science Principles Certificate
International Association of Certified Home Inspectors (InterNACHI)	Home Energy Inspector
National Association of Home Inspectors (NAHI)	Certified Real Estate Inspector
National Association of the Remodeling Industry (NARI)	Green Certified Professional, Certified Remodeler, or Master Certified Remodeler
North American Technician Excellence (NATE)	Air Conditioning/Heat Pumps, Gas/Oil Heating, or Gas/Oil Hydronics
RESNET	HERS Rater

Home Energy Score Integration with FHA programs

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

- ✓ **Incentive:**
  - Provide a two percent stretch on the debt-to-income ratio provided to borrowers purchasing or refinancing a home that reaches an acceptable threshold
  - Increase the allowable amount of the Weatherization loan to $5,000 and identify "Eligible Energy Measures" according to the Home Energy Score
- ✓ **Goal:** Generate a Home Energy Score with every FHA transaction (~1.5 million loans per year)
- ✓ **Announced:** August 2015
- ✓ **Launch:** Second half of 2015

2%

Home Energy Score

HomeEnergyScore@ee.doe.gov

www.HomeEnergyScore.gov

Become a Certified GreenHome Professional

- ✓ Set yourself apart as a residential green professional
- ✓ Latest in Green Building Science
- ✓ On demand / just in time training & education
- ✓ Open book / open note exams for associates level
- ✓ Certify a residential building project to go pro!
- ✓ Baseline to Home Energy Score Assessor

GreenHome INSTITUTE PROFESSIONAL

greenhomeinstitute.org/learn/certifiedgreenhomeprofessional/

GreenHome INSTITUTE

Home Energy Score = GreenStar Energy Points

1. Test in or Plan review with your rater or contractor
2. Assemble scope of work based on recommendations
3. Test out after construction / remodeling - Rescore
4. 

Estimated energy use per year	
Total (MBTUs)	218

5. Convert to KWHe/year/square foot
6. *Collect energy points (Solar added separately)*

greenstar
Certified Green Homes and Remodeling

Home Energy Score

HomeEnergyScore@ee.doe.gov

www.HomeEnergyScore.gov