



HOME PERFORMANCE COALITION CONFERENCE

HARMONIZING HERS AND HOME ENERGY SCORE

April 24, 2018

Ed Carley, NASEO | Noel Merket, NREL | Joan Glickman, DOE | Richard Faesy, EFG
| Emily Levin, VEIC | Andy Popp, MO DOE | Becca Trietch, RI OER

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Introduction & Overview

Ed Carley | ecarley@naseo.org

Overview

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1. Introduction & Overview
 - ▣ Ed Carley, NASEO
2. Data Analysis
 - ▣ Noel Merket, NREL
3. EnergyPlus as the Common Modeling Engine
 - ▣ Joan Glickman, DOE
4. EMPRESS Recommendations for Labels & Metrics
 - ▣ Richard Faesy
5. EMPRESS Policy Guidance
 - ▣ Emily Levin, VEIC
6. Missouri Case Study
 - ▣ Andy Popp, MO Division of Energy
7. Q&A
 - ▣ Becca Trietch, RI OER

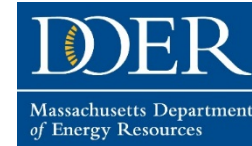
Learning Objectives

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1. Understand current national and state efforts to harmonize HERS and Home Energy Scores.
2. Learn how the EnergyPlus modeling tool is quickly becoming the "go to" standard for building energy modeling.
3. Be provided an opportunity to explore the EMPRESS Policy Toolkit, which includes model policies, legislation, regulations and governance frameworks to promote home energy scorecards.

The EMPRESS Team

- ❑ Rhode Island Office of Energy Resources (OER)
- ❑ National Association of State Energy Officials (NASEO)
- ❑ Arkansas Energy Office (AEO)
- ❑ Massachusetts Department of Energy Resources (DOER)
- ❑ Missouri Division of Energy (DE)
- ❑ Oregon Department of Energy (ODOE)
- ❑ Earth Advantage (EA)
- ❑ Energy Futures Group (EFG)
- ❑ Vermont Energy Investment Corporation (VEIC)



EMPRESS Goals

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- Promote consistency in energy model outputs (i.e. energy use, cost, potential savings, fuel use, etc.) by shifting HERS Index and Home Energy Score software programs to Energy Plus
- Promote market transformation and improve efficiency of homes by making energy use transparent through energy score cards (MPG sticker for homes)
- Provide policy guidance to jurisdictions that want to implement energy labeling programs.



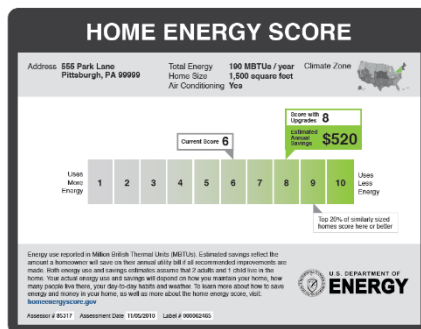
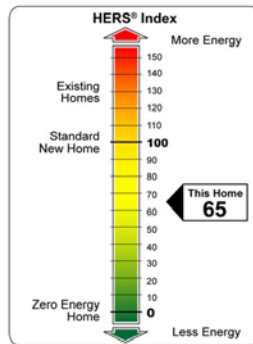
Harmonization Working Group

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- Provide a forum for software providers to speak directly to NREL.
- Engage in technical discussions to enable use of Energy Plus for HERS ratings.
- Five software providers and DOE have signed on to participate, and a number of others have joined conference calls.



Market Transformation



- Home Energy Labels have the potential to transform the residential building market by making energy efficiency visible
- 2 primary systems provide info on home energy performance in the US:
 - ▣ Home Energy Rating System (HERS) from the Residential Energy Services Network (RESNET)
 - ▣ Home Energy Score (HEScore) from the US Department of Energy (DOE)
- These 2 systems calculate and represent energy performance quite differently – leading to market confusion

Policy guidance

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- How labeling can help meet policy objectives
 - ▣ Improve the efficiency of existing building stock
 - ▣ Improve efficiency absent state wide energy code
- Steps and considerations to develop a labeling ordinance
 - ▣ Mandatory and voluntary policies
 - ▣ Standard score card elements

Data Analysis – HERS & HEScore

Noel Merket
24 April 2018

National Home Performance Conference 2018



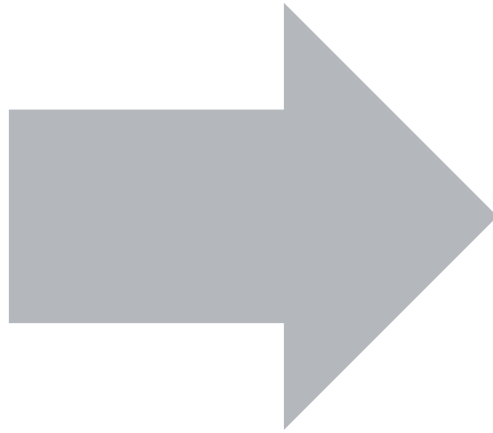
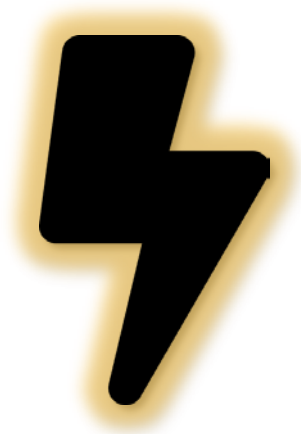
Comparing Houses

House A has a Home Energy Score of 7.

House B has a HERS Rating of 83.

Which is better?

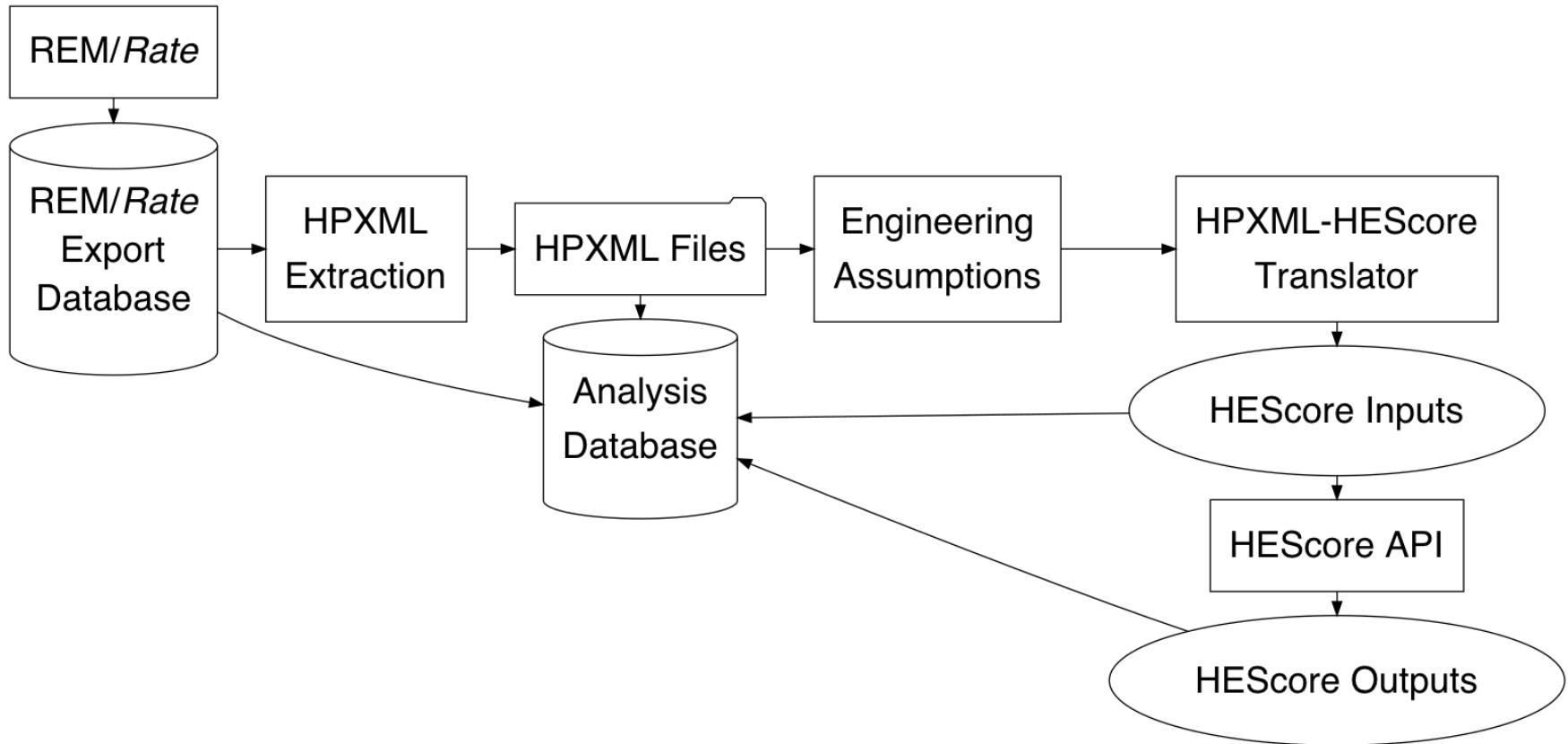
A Common Metric



Analysis

Why are the energy predictions different?

Methodology



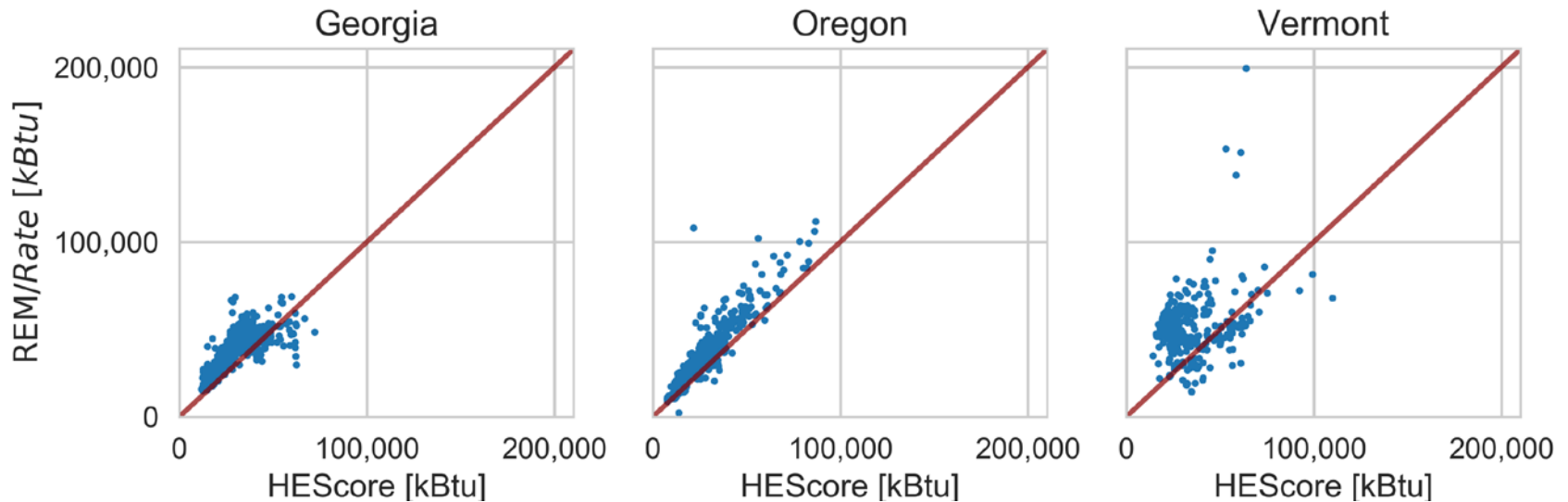


Methodology

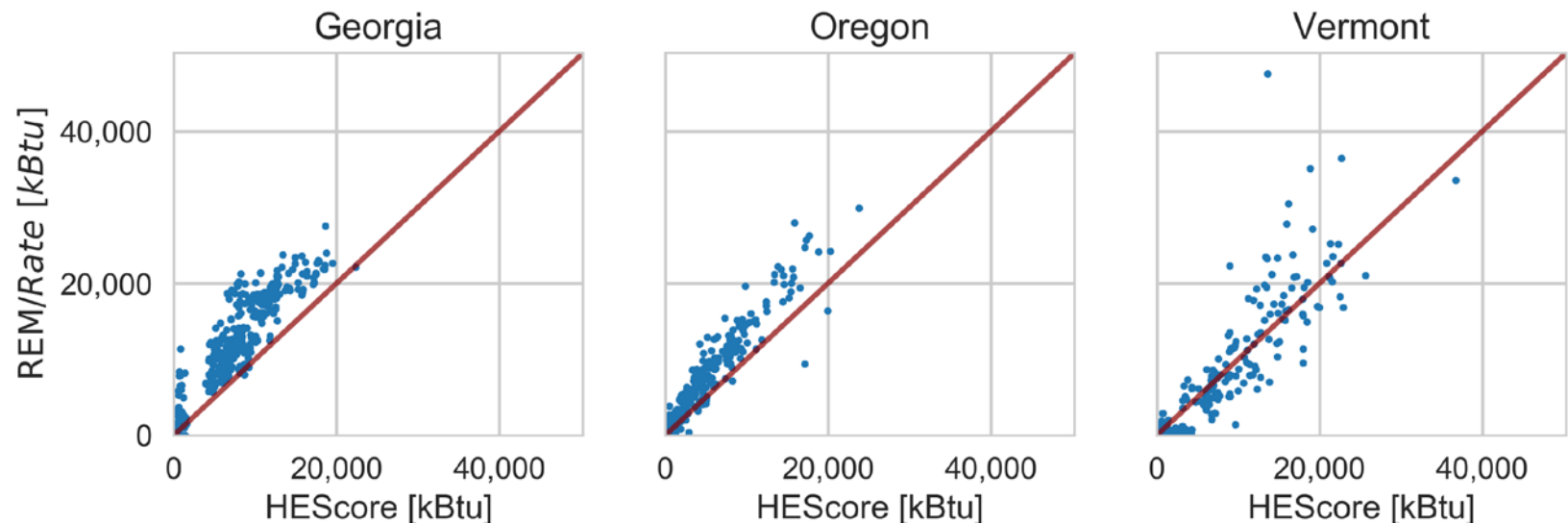
Apply a machine learning regression technique called a **Random Forest** to the differences between energy predictions to determine the **features of the house most likely to cause a difference** in energy prediction.

Results - Heating

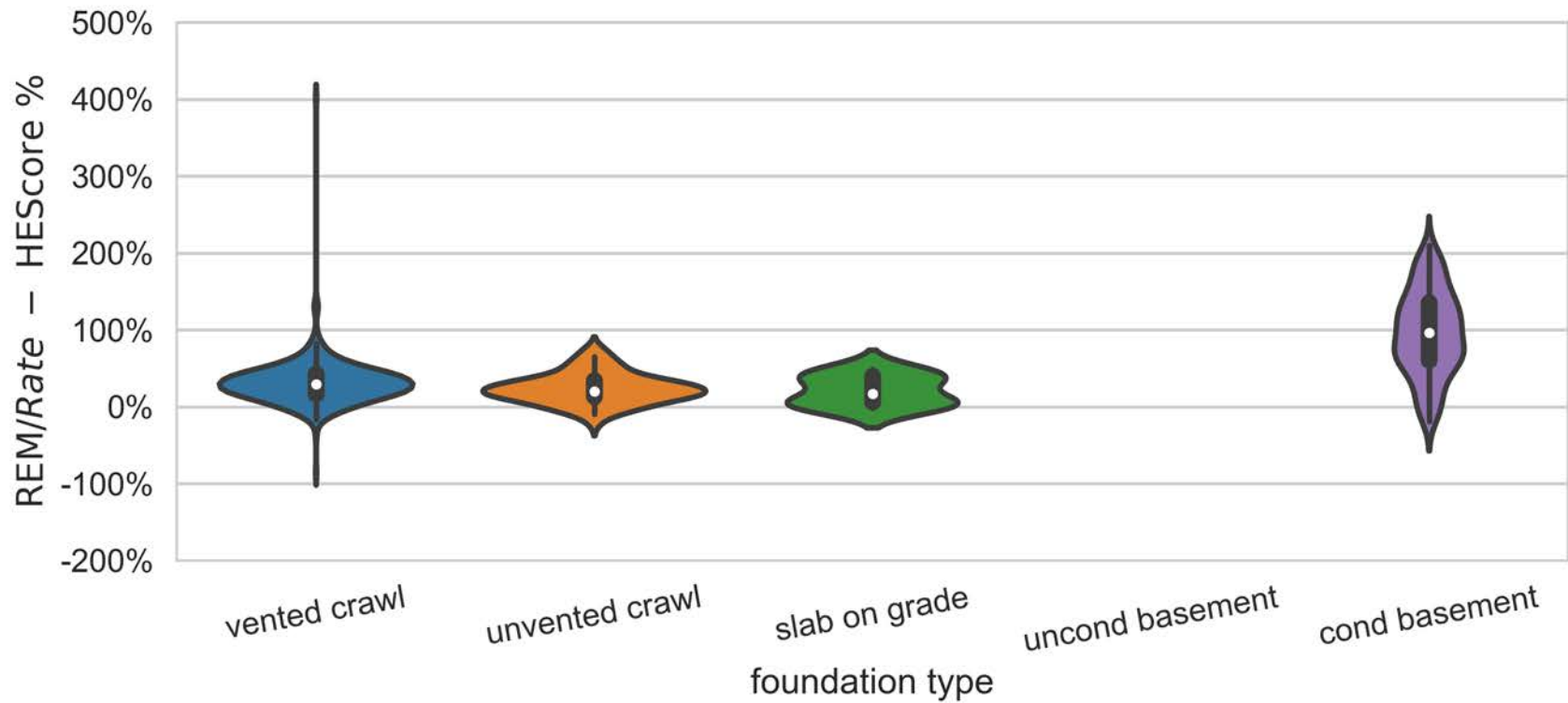
Heating Natural Gas



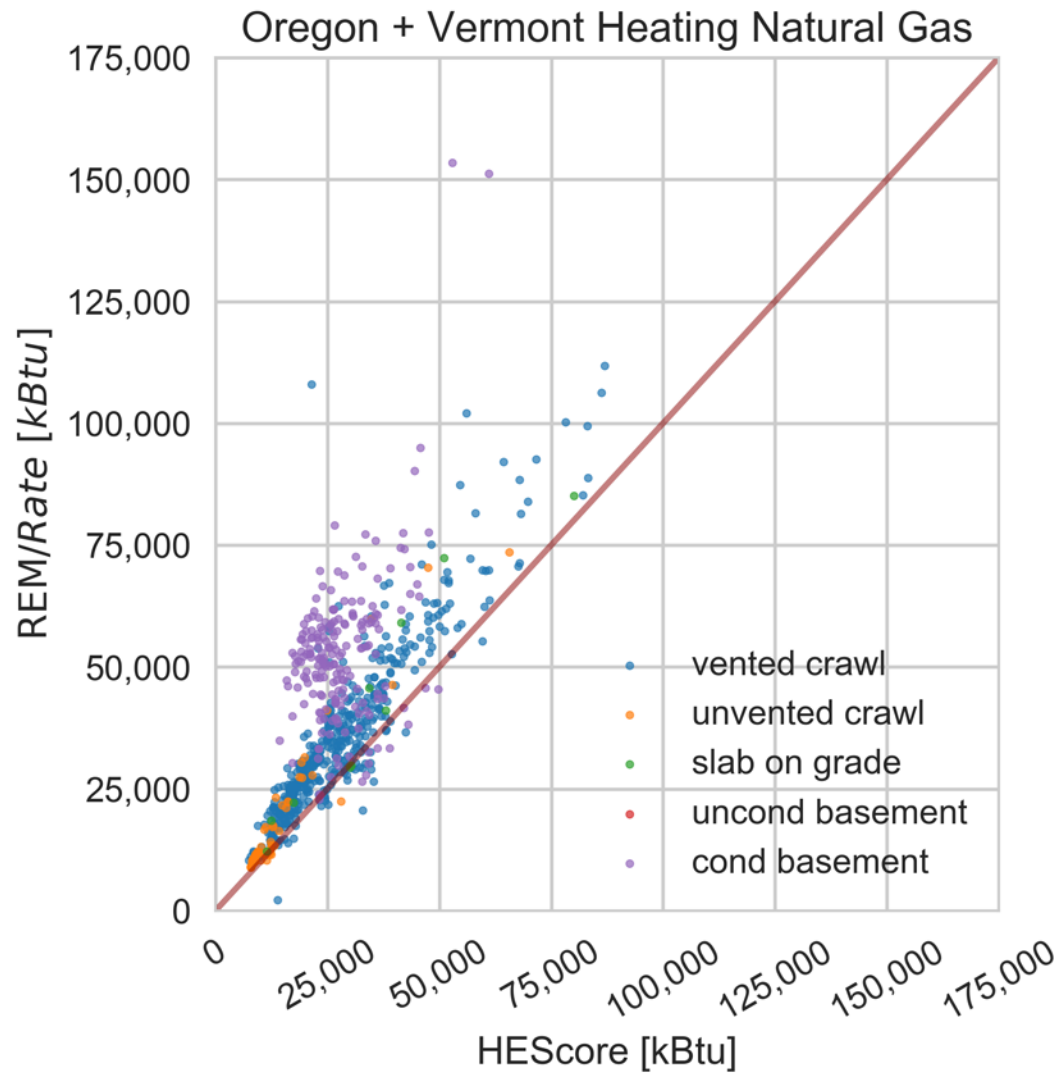
Heating Electricity



Results - Heating

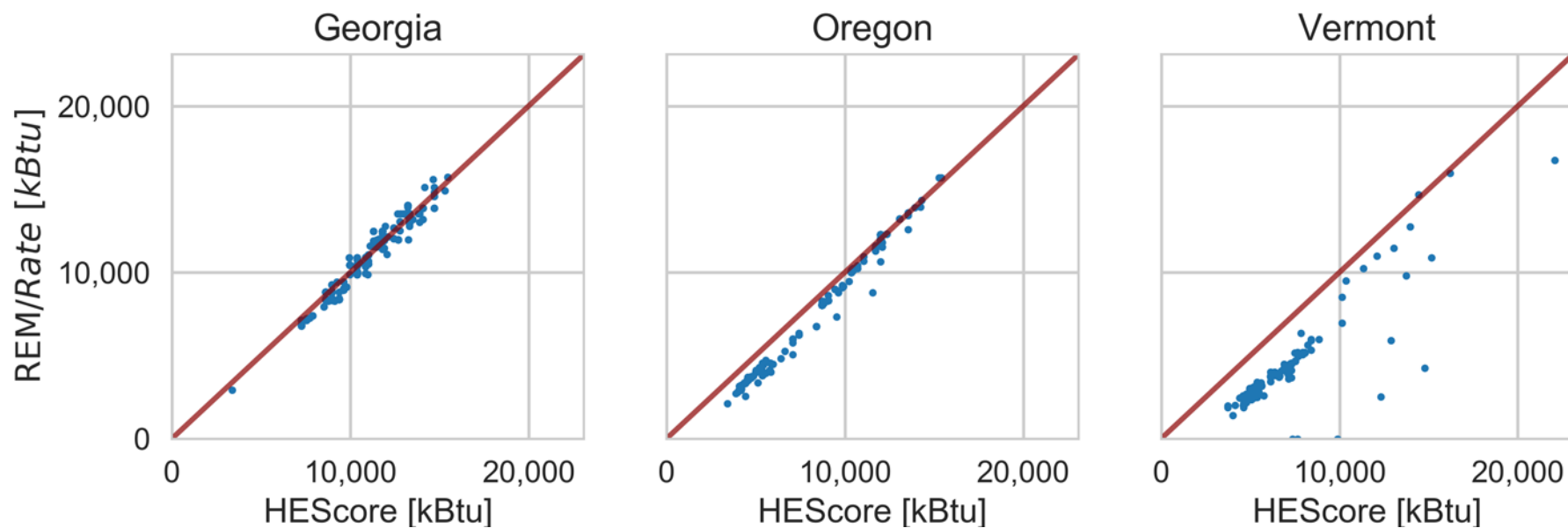


Results - Heating

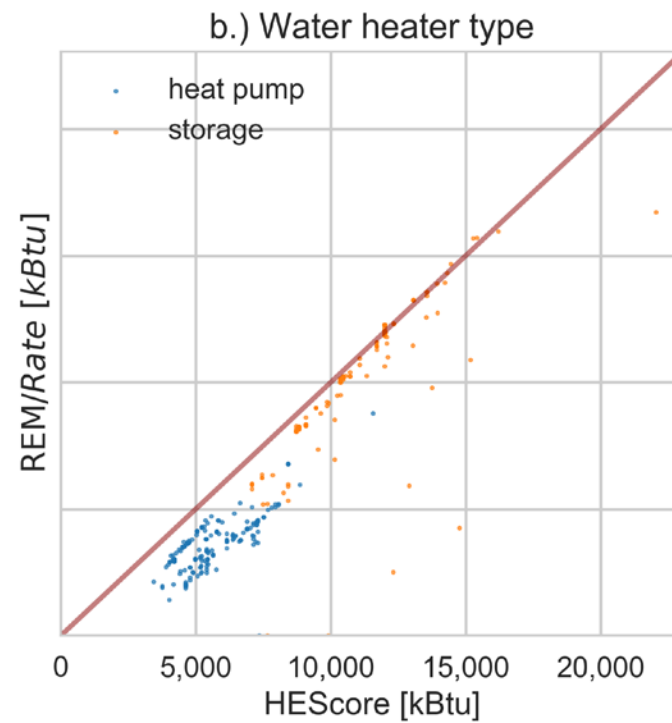
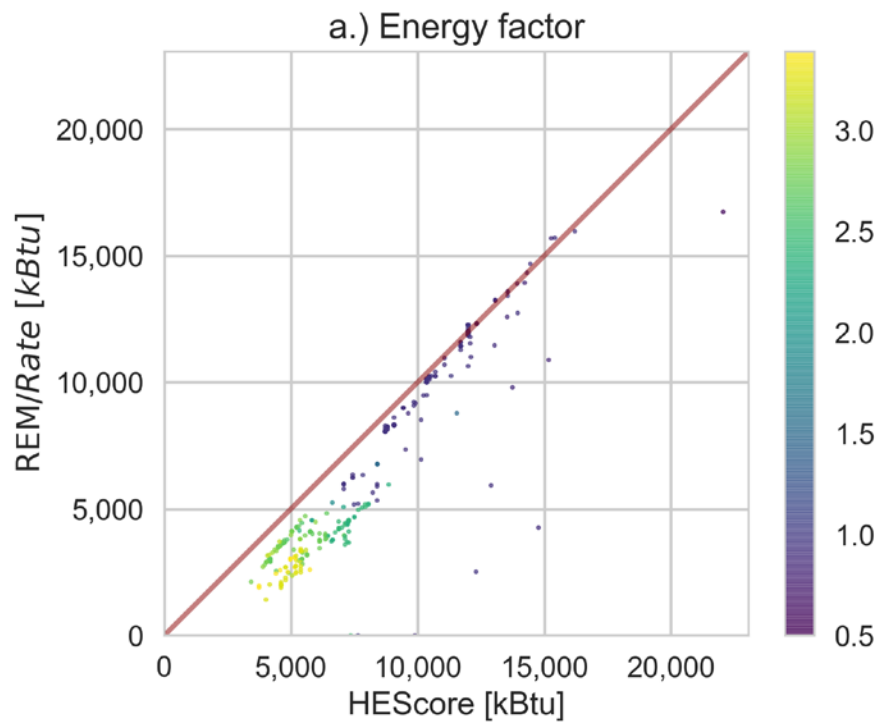


Results – Hot Water

Hot Water Electricity



Results – Hot Water



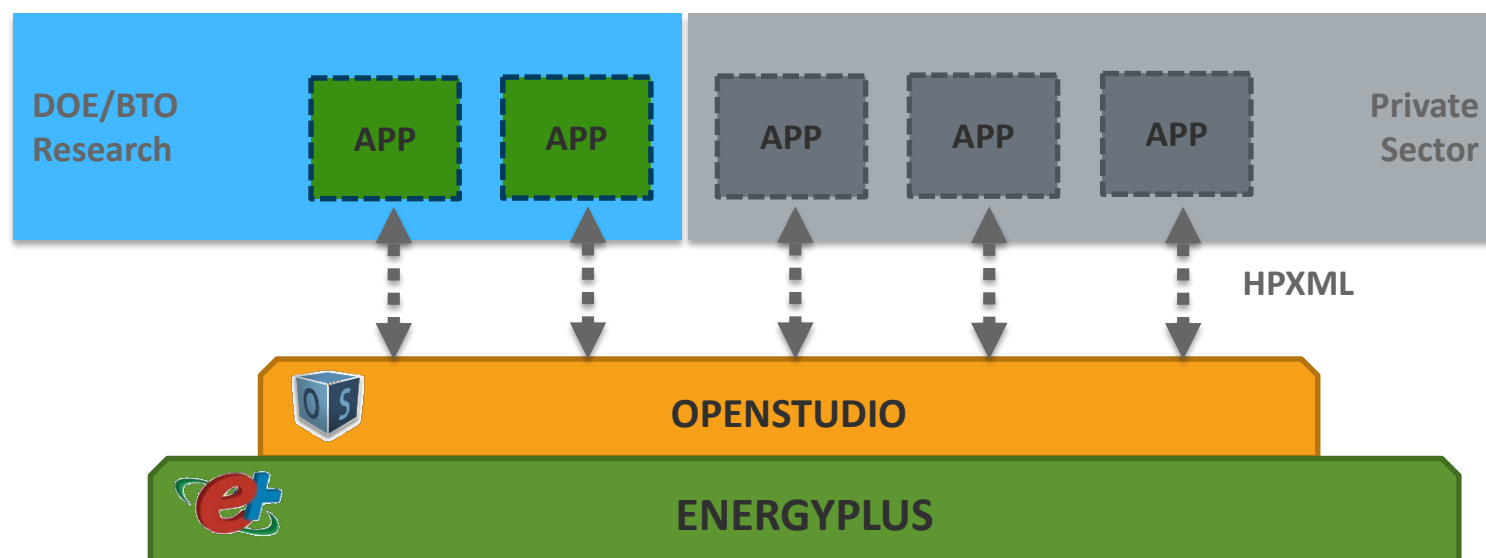
Conclusions

- We can identify some “problem areas” between these two models.
 - Foundation heat transfer
 - Heat pump water heaters
 - Cooling in larger homes
 - Lighting and appliance assumptions
- Aligning the various computer models assumptions and calculation methodology would be an involved process.

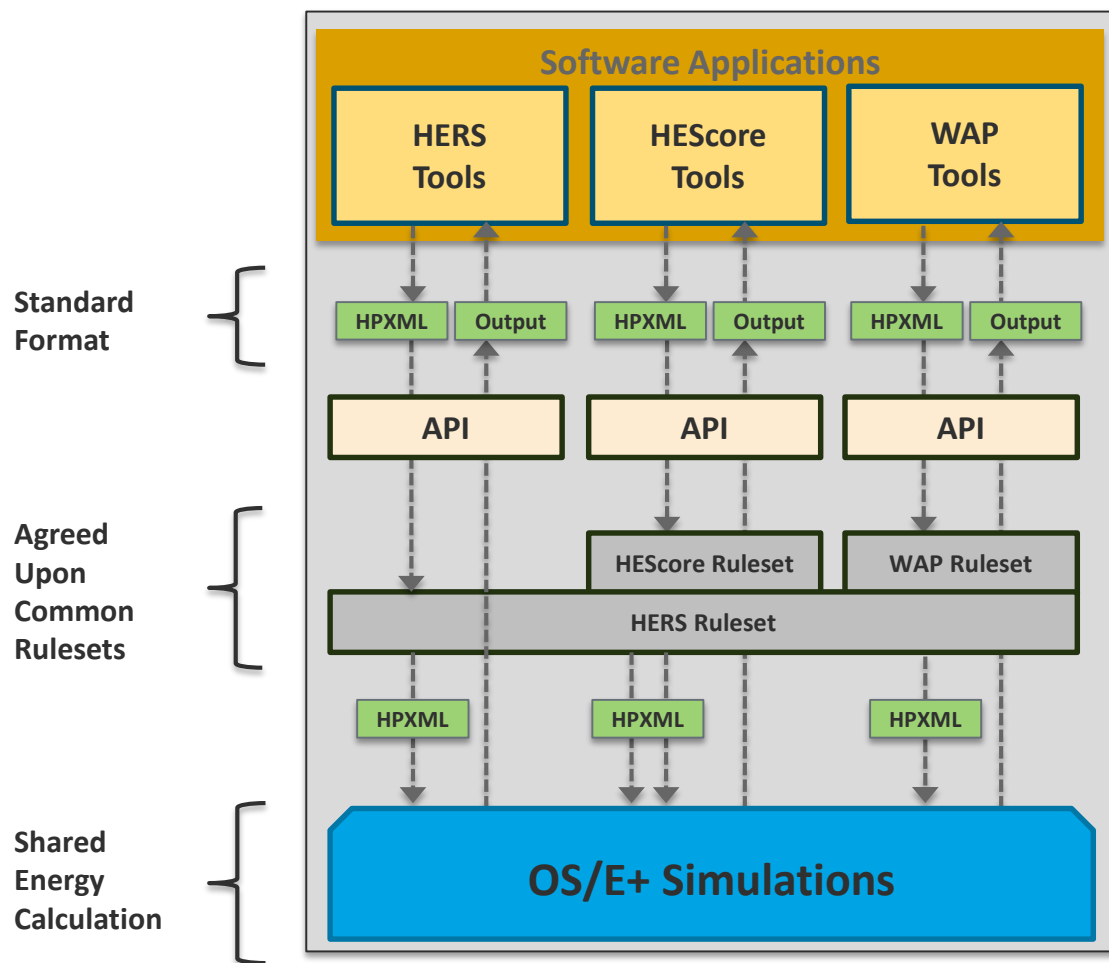
EnergyPlus will solve all
your problems

Here's how...

Consolidated Residential Modeling Platform



Consolidated Residential Modeling Platform



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.

Thank you

www.nrel.gov

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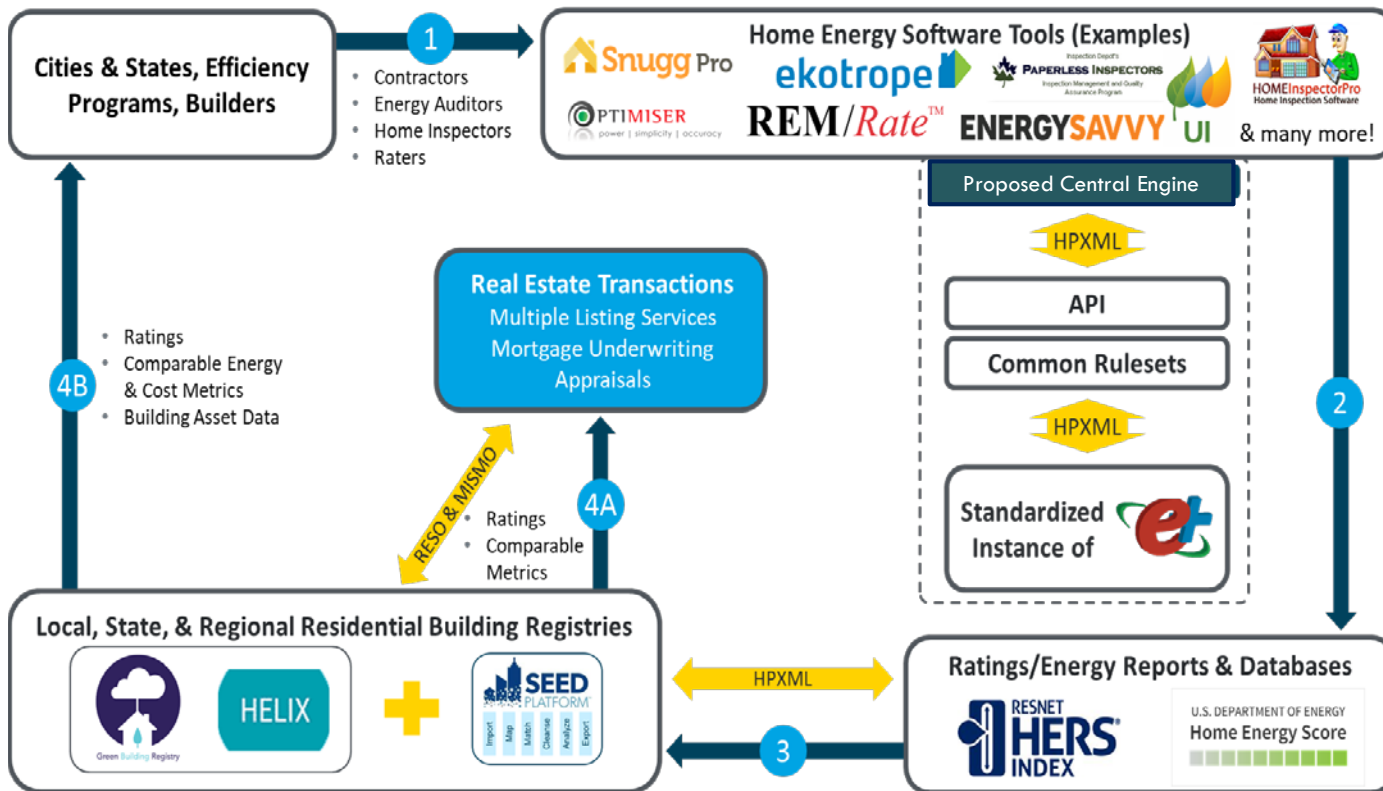


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Harmonization through EnergyPlus

Joan Glickman, U.S. DOE

Getting Value from Residential Data & Rating Tools



RESO: Real Estate Standards Organization

MISMO: Mortgage Industry Standards Maintenance Organization

HPXML: Home Performance Data Transfer XML

Generate Reliable Standard Metrics and More (if desired)

- Some users may only want the common metric to be generated through the common engine; others may want more
- Depending on the use case, a software tool could deliver a variety of outputs

Example Outputs

- ✓ Common Metric (e.g., annual energy estimate, annual cost estimate)
- ✓ HERS Rating
- ✓ Home Energy Score
- ✓ List of cost effective improvements
- ✓ Estimated cost of energy improvements costs
- ✓ Estimated cost savings

Benefits of Harmonized System

- ✓ Meets market needs
 - ❖ Ratings, energy estimates, etc. are only useful if market actors have confidence in them and are willing to apply them (by adjusting valuations, offering incentives, etc.)
 - ❖ Realtors, financial markets, appraisers, policymakers demand reliable, comparable energy estimates for new and existing homes
- ✓ Lowers industry cost
 - ❖ No longer need to maintain and update multiple energy models/engines
 - ❖ Software developers can build innovation on top of consistent estimation tool
- ✓ Opportunity to develop further to meet additional needs
 - ❖ For example, given a common calculation tool, utilities, financiers, and others may have greater confidence in savings predictions (particularly if the model is calibrated overtime based on actual results)
 - ❖ Depending on interest of users, NREL could add rulesets for demonstrating code compliance to different levels (e.g., 2012, 2015)

Process Moving Forward

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- Regular working group meetings with NREL, DOE, software developers, and others with interest (e.g., RESNET, NASEO)
- Develop assumptions, rule sets, etc.
- Development ramping up within next couple of months with goal of beta testing API in 12 months and launching final API in 18 months

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Harmonizing Metrics & Labels

Richard Faesy, Energy Futures Group

Harmonization Matrix

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“Metrics & Information for an Asset-Based Home Energy Performance Label” from EMPRESS Project

1. Primary Metrics
2. Cost Metrics
3. Fuel Use & Price
4. Supporting Information
5. Supplemental Information

		A. Policy Objective		B. Metric Characteristics						
		Greenhouse Gas (GHG) Reductions	Energy Use Reductions & Cost Savings	Use case(s)	Durable	Granular (Impact on the home to change the score)*	Readily Understood by Consumers**	Cost of Delivery	Finance Industry Recognition	
Choose one or more primary metrics	1. Primary Metrics***									
	Home Energy Rating System (HERS) Index	Usually Yes—improvement in HERS/HES is generally correlated with GHG reductions	Yes - Directly compares the home's energy & cost to the reference code IECC 2006	Primarily used for new home marketing programs (e.g., ENERGY STAR) & code compliance; can also be used on existing homes	Somewhat - Index will change when reference code baseline is updated and/or when software is updated	Yes	The index generally requires some explanation by the Rater	Generally \$400-1200	Available, but not often used	
	Home Energy Score		Yes - Directly compares source energy & cost to the national averages (derived from 2009 Energy Information Agency data)	Primarily used for existing home retrofit initiatives; can also be used for new homes	Somewhat - Scores will change when underlying score bins are updated and/or software is updated	Somewhat - generally large improvements are needed to impact the score	The score, while simple in scale, generally requires some explanation by the Assessor	Generally \$700-400	Available, not often used but use is increasing	
	Greenhouse gas (GHG) impact	Yes	Yes Indirectly—reduction in GHG emissions may be correlated with a reduction in energy use and/or cost depending on fuel mix	New or existing homes	Generally yes—Subject to changes in fuel and generation mix	Yes - Depends on scale precision	Units new to consumers	Can be extracted from existing tools, so similar cost to HES.	Not currently	
	Site energy use in millions of British Thermal Units per year (MBtu/year)	Usually Yes—reduction in MBtu or kWh-equivalent is generally correlated with GHG reductions	Yes - lower MBtu and kWh-e metrics directly indicate lower energy use and/or cost.		Yes	Yes				
	Site kilowatt hour equivalent per year (kWh-equivalent/year)									
Pick a Cost Metric & A Timeframe	2. Cost Metrics									
	Total Energy Cost (\$/timeframe)	Derived from estimated asset-based energy use, not operational (billing) data. This is usually the total annual energy cost for the home. Some programs might choose to display monthly energy costs if they are messaging monthly mortgage and related costs. Programs that want to message longer term energy costs (e.g., costs over the average timeframe for home ownership) may choose to display 10 year energy costs.								
	Energy Savings (\$/timeframe)	Usually annual savings from recommended measures. For example, HES recommends only measures with a 10 year payback or better. Not all systems generate recommendations or savings. New homes scores may not display recommended upgrades. New homes programs can display savings above a standard code home (this home built to code)								
Support with Fuel Use & Unit Prices	3. Fuel Use and Price									
	Native Fuel Use by Fuel Type	Estimated fuel use in the units a customer would see on their bill. Native units means therms or ccf or decatherms for natural gas, kilowatt-hours for electricity and gallons for oil or propane.								
	Unit Price by Fuel Type	Price per fuel in native units, for example \$1.00 per therm, \$0.10 per kWh, or \$2.00/gallon.								
Include on All Labels	Annual Cost by Fuel Type	Cost of all fuel use in the home, discrete by fuel. Allows homeowners to see what each fuel represents in their energy budget.								
	4. Supporting Information									
	Date of Issue	Include date of issue as reference point for fuel costs and tool version.								
Other Information to Include to Help Explain and Substantiate Metrics	Tool Version	Include tool version number for reference.								
	Verification Body	Include body responsible for issuing label, such as local provider or verifier with QC oversight responsibilities (reference RESO).								
	5. Supplemental Information									
Other Information to Include to Help Explain and Substantiate Metrics	Reference Case	Including reference case(s) as indicators can help consumers to better compare homes. For example, including references such as a zero-net energy home or an average home within the specified jurisdiction, can help consumers understand a home's relative performance. In other words, the consumer may not understand what a MBtu/year metric means, but with reference case(s), the consumer could know if a home was better or worse in relative terms.								
	Recommendations	Provide any home performance, energy saving, health and safety, building durability and other recommendations to provide guidance and suggestions to home owners/buyers to make improvements.								
	Conditioned Floor Area	Information on the conditioned floor area of a home allows for better, more accurate, comparisons with other homes by providing a basis for normalization.								
	Year Built	Year built can help predict the performance of a home because it dictates the building code standards used during the home's construction.								
	Home Features	Listing key features such as energy efficiency HVAC systems or extra insulation can help consumers to connect the estimated energy performance of a home to the home's physical assets. Such knowledge can encourage consumers to appreciate and maintain their most important energy-saving features. For energy professionals, this information can provide insight into some of the assumptions used for calculated metrics such as estimated MBtu/year. This information can also support local energy efficiency programs by providing both home energy auditors and home owners with knowledge about existing assets.								
	Site vs. Source Energy Use	The metrics described above use site information in their calculations. However, there are several efforts by DOE, Home Energy Score, California and others that aim to reduce greenhouse gas emissions and costs system-wide. Tracking system-wide reductions in emissions and costs requires metrics to be based on source calculations. However, this adds complexity and can cause confusion for the general public. In addition, it may act to disengage homeowners since reducing source emissions or costs, in contrast to reducing site emissions or costs, is often out of a homeowner's control. Therefore, it is not recommended that metrics indicating source emissions or costs be primary or secondary metrics. The inclusion of this type of information on a label would primarily be for the benefit of state or federal level program/initiative administrators.								
	New Future Asset & Operational Metric	In the future, a metric may be established that considers both asset and operational information for a home. All metrics currently listed in this table are based on asset information only. If a combination asset and operation metric is established, consumers would benefit from understanding both what systems are within a home and how they are currently operating.								
	Other Certifications	Include any energy efficiency and green building program certification information, including but not limited to local program certifications, ENERGY STAR, LEED, National Green Building Standard, etc.								
Other Information to Include to Help Explain and Substantiate Metrics	Translations from other score	Any metric can be translated into a "grade" or other simplified "binned metric" such as A-F or 1-10. The A-F approach is currently used in Europe and in some real estate portals; HES uses the 1-10 scale. Often kWh/sq. ft. is used as the basis for an A-F grade. It is important that the basis of the grade or binned metric be noted on the label.								

*How sensitive the score is to retrofits - i.e. will small changes impact the score?

**This Metric Characteristics also includes the level of recognition by an average consumer.

***Assumes a common calculation engine is used for all metrics.

Primary Metrics

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1. “Choose one or more primary metrics”
 - ▣ HERS Index
 - ▣ HEScore
 - ▣ Greenhouse gas (GHG) impact
 - ▣ Site energy use in Mbtu per year
 - ▣ Site kWh equivalent per year

Primary Metrics & Criteria

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A. Policy Objective			B. Metric Characteristics				
Greenhouse Gas (GHG) Reductions	Energy Use Reductions & Cost Savings	Use case(s)	Durable	Granular (Impact on the home to change the score)*	Readily Understood by Consumers**	Cost of Delivery	Finance Industry Recognition
Usually Yes--improvement in HERS/HES is generally correlated with GHG reductions	Yes - Directly compares the home's energy & cost to the reference code IECC 2006	Primarily used for new home marketing, programs (e.g., ENERGY STAR) & code compliance; can also be used on existing homes	Somewhat - Index will change when reference code baseline is updated and/or when software is updated	Yes	The Index generally requires some explanation by the Rater	Generally \$400-1200	Available, but not often used
	Yes - Directly compares source energy & cost to the national averages (derived from 2009 Energy Information Agency data)	Primarily used for existing home retrofit initiatives; can also be used for new homes	Somewhat - Scores will change when underlying score bins are updated and/or software is updated	Somewhat - generally large improvements are needed to impact the score	The score, while simple in scale, generally requires some explanation by the Assessor	Generally \$200-400	Available, not often used but use is increasing
Yes	Yes Indirectly-reduction in GHG emissions may be correlated with a reduction in energy use and/or cost depending on fuel mix	New or existing homes	Generally yes-Subject to changes in fuel and generation mix	Yes - Depends on scale precision	Units new to consumers	Can be extracted from existing tools, so similar cost to HES.	Not currently
Usually Yes--reduction in MBtu or kWh-equivalent is generally correlated with GHG reductions	Yes - lower Mbtu and kWh-e metrics directly indicate lower energy use and/or cost.		Yes	Yes			

Criteria for Each Tool/Metric

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A. Policy Objective

- ▣ Greenhouse Gas (GHG) Reductions
- ▣ Energy Use Reductions & Cost Savings

B. Metric Characteristics

- ▣ Use Case(s)
- ▣ Durability
- ▣ Granularity (sensitivity to energy efficiency features)
- ▣ Readily Understood by Consumers
- ▣ Cost of Delivery
- ▣ Finance Industry Recognition

Cost Metrics, Fuel Use & Price and Supporting Information

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2. Cost Metrics

- ▣ “Pick a Cost Metric & A Timeframe”
 - ▣ Total Energy Cost (\$/timeframe)
 - ▣ Energy Savings (\$/timeframe)

3. Fuel Use and Price

- ▣ “Support with Fuel Use and Unit Prices”
 - ▣ Native Use by Fuel Type
 - ▣ Unit Price by Fuel Type
 - ▣ Annual Cost by Fuel Type

4. Supporting Information

- ▣ “Include on all Labels”
 - ▣ Date of Issue
 - ▣ Tool Version
 - ▣ Verification Body

Cost Metrics, Fuel Use & Price and Supporting Information

Pick a Cost Metric & A Timeframe	2. Cost Metrics	
	Total Energy Cost (\$/timeframe)	Derived from estimated asset-based energy use, not operational (billing) data. This is usually the total annual energy cost for the home. Some programs might choose to display monthly energy costs if they are messaging monthly mortgage and related costs. Programs that want to message longer term energy costs (e.g., costs over the average timeframe for home ownership) may choose to display 10 year energy costs.
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Include on All Labels	4. Supporting Information	
	Date of Issue	Include date of issue as reference point for fuel costs and tool version.
	Tool Version	Include tool version number for reference.
	Verification Body	Include body responsible for issuing label, such as local provider or verifier with QC oversight responsibilities (reference RESO).

Supplemental Information

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5. Supplemental Information

- ▣ “Other Information to Include to Help Explain and Substantiate Metrics”
 - ▣ Reference Point(s)
 - ▣ Recommendation
 - ▣ Conditioned Floor Area
 - ▣ Year Built
 - ▣ Home Features
 - ▣ Site vs. Source Energy Use
 - ▣ New Future Asset & Operational Metrics
 - ▣ Other Certifications
 - ▣ Translations from other score (A-F or similar “grades”)

Supplemental Information

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5. Supplemental Information

Other Information to Include to Help Explain and Substantiate Metrics	Reference Case	Including reference case(s) as indicators can help consumers to better compare homes. For example, including references such as a zero-net energy home or an average home within the specified jurisdiction, can help consumers understand a home's relative performance. In other words, the consumer may not understand what a MBtu/year metric means, but with reference case(s), the consumer could know if a home was better or worse in relative terms.
	Recommendations	Provide any home performance, energy saving, health and safety, building durability and other recommendations to provide guidance and suggestions to home owners/buyers to make improvements.
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	Site vs. Source Energy Use	The metrics described above use site information in their calculations. However, there are several efforts by DOE, Home Energy Score, California and others that aim to reduce greenhouse gas emissions and costs system-wide. Tracking system-wide reductions in emissions and costs requires metrics to be based on source calculations. However, this adds complexity and can cause confusion for the general public. In addition, it may act to disengage homeowners since reducing source emissions or costs, in contrast to reducing site emissions or costs, is often out of a homeowner's control. Therefore, it is not recommended that metrics indicating source emissions or costs be primary or secondary metrics. The inclusion of this type of information on a label would primarily be for the benefit of state or federal-level program/initiative administrators.
	New Future Asset & Operational Metric	In the future, a metric may be established that considers both asset and operational information for a home. All metrics currently listed in this table are based on asset information only. If a combination asset and operation metric is established, consumers would benefit from understanding both what systems are within a home and how they are currently operating.
	Other Certifications	Include any energy efficiency and green building program certification information, including but not limited to local program certifications, ENERGY STAR, LEED, National Green Building Standard, etc.
	Translations from other score	Any metric can be translated into a "grade" or other simplified "binned metric" such as A-F or 1-10. The A-F approach is currently used in Europe and in some real estate portals; HES uses the 1-10 scale. Often kBtu/sq. ft. is used as the basis for an A-F grade. It is important that the basis of the grade or binned metric be noted on the label.

*How sensitive the score is to retrofits - i.e. will small changes impact the score?

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***Assumes a common calculation engine is used for all metrics.

Tool Harmonization

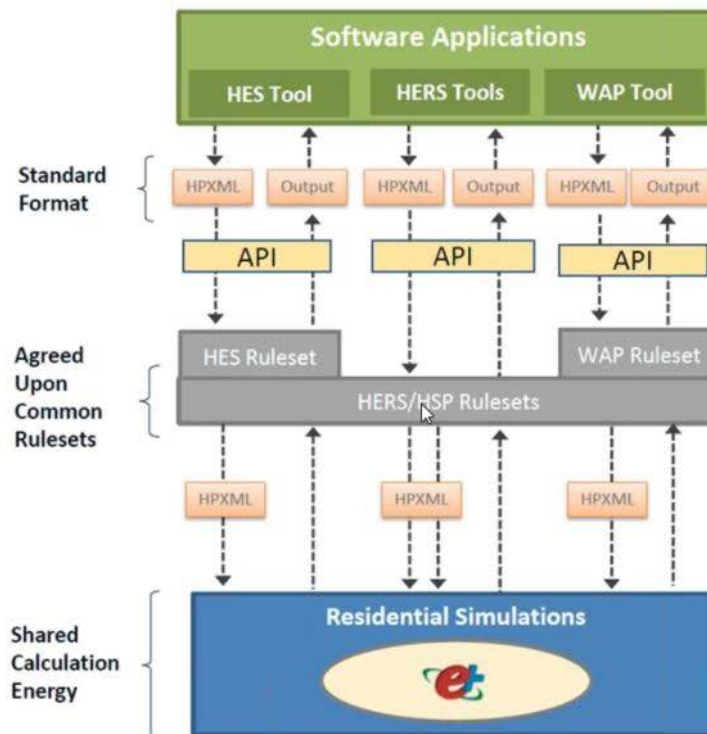
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- NASEO EnergyPlus Working Group
 - ▣ NREL, RESNET, States
 - ▣ Software Providers
 - ▣ Eight signed letters of cooperation from most of the major HERS, Home Energy Score and Home Performance software providers

EnergyPlus Common Modeling Engine

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ERI Technical Walk-Thru



Potential Outputs

- ✓ Common Metric (e.g., annual energy estimate, annual cost estimate)
- ✓ HERS Rating
- ✓ Home Energy Score
- ✓ List of cost effective improvements
- ✓ Energy improvement costs & estimated cost savings

Benefits

- ✓ Meets the needs of realtors, financial markets, appraisers, policymakers who are all interested in having reliable, comparable energy estimates for new and existing homes
- ✓ Reduced cost to industry of maintaining multiple energy models/engines
- ✓ Flexible system supports different use cases and allows software developers to build innovation on top of consistent estimation tool
- ✓ Potentially provides a consistent method for utilities and others to predict energy savings from retrofits
- ✓ Potentially could add rulesets for demonstrating code compliance (this would likely be done at the state level)

Labeling Guide

Emily Levin, VEIC

Becca Trietch, RI Office of Energy Resources

Overview: A Guide for State & Local Governments

- **Introduction:** What Is Home Energy Labeling & Why Is It Beneficial
- **Part 1:** Steps To Establishing A Labeling Program/Policy
- **Part 2:** Home Energy Labeling Strategies: Mandatory Vs. Voluntary
- **Part 3:** Six Critical Elements For Successful Home Energy Labeling
- Additional Resources, Helpful Topics, And Examples Of Home Energy Labeling In Action

Part 1: Steps to Establish a Labeling Program/Policy

- Step 1. Assess Your Market & Set Goals
- Step 2: Define the Policy or Program Parameters
- Step 3: Identify a Program Coordinator and Funding Source
- Step 4: Connect the Dots Between Labels and Market Transformation

Part 2: Home Energy Labeling Strategies: Mandatory vs. Voluntary

- Level of Market Traction
- Mandatory Approach: Special Considerations
- Voluntary Approach: Special Considerations

Mandatory Programs	Voluntary Programs
Achieve high levels of real estate market penetration	Achieve lower levels of real estate market penetration
Usually difficult to enact due to opposition from real estate stakeholders	May be able to integrate with utility energy assessment programs
Usually market-based pricing in which customers pay for labels	Require significant incentives and marketing to drive demand

Part 3: Six Critical Elements For Successful Home Energy Labeling

- Element 1: Creating a Start-Up & Implementation Plan
- Element 2: Defining Label Components
- Element 3: Determining a Software & IT Path
- Element 4: Training Professionals
- Element 5: Educating Realtors and Appraisers
- Element 6: Linking Labels and Scores with Multiple Listing Services

Case Studies in the Guide

□ Voluntary:

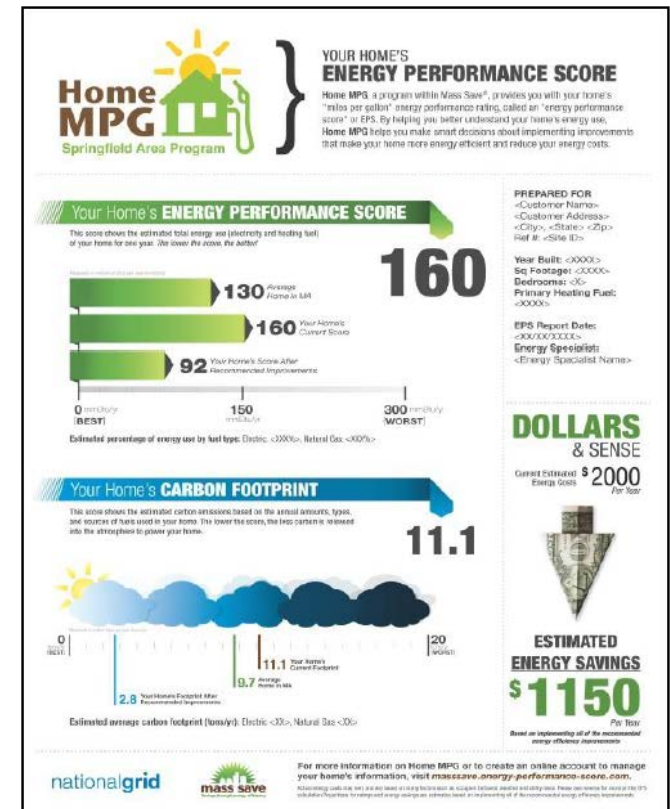
- CO: Linking Home Energy Scores to incentives at point of sale
- CT: Integrating Home Energy Scores into utility programs
- MO: Using a certification program to promote energy labels
- NJ: Using an equipment program as entry point for scoring
- OR: Legislating a statewide framework for home labeling
- VT: Reaching consensus with real estate professionals on providing score information at time of sale

□ Mandatory:

- Municipal ordinances in Austin, Berkeley, and Portland

Recent Developments: MA Proposed Home Energy Scorecard Legislation

- Scorecards incorporated into home audits provided through statewide EE program and HERS ratings performed for code compliance
- Energy performance ratings disclosed when home is publicly listed for sale; scorecards disclosed before execution of purchase & sale agreement
- Through regulation, DOER establishes “reasonable exemptions” to the disclosure requirement
- DOER establishes energy performance rating, scorecard, and requirements for updating scorecards following home EE improvements
- Training for real estate professionals
- Funding available for related activities, including scorecard “start-up” costs



Other Information in the Guide

- ❑ Sample Legislation, Derived from Oregon Voluntary Labeling Law
- ❑ Sample Ordinance Language, Derived from Portland, Oregon, Residential Energy Performance Rating Ordinance
- ❑ Currently Available Home Energy Labeling Tools
- ❑ Privacy Concerns
- ❑ Label Examples
- ❑ More detail on DOE's Home Energy Score Program
- ❑ More detail on the Home Energy Rating System (HERS)
- ❑ Connecting with Multiple Listing Services: Current Efforts
- ❑ Links to Relevant Resources

Review & Publishing Process

- Mid-May 2018 the EMPRESS team will start accepting public comments on the content & design of the Guide and supporting web content
- Be sure to check our website for updates (this site will host the Guide and supplemental content):
www.naseo.org/home-energy-labeling/empress

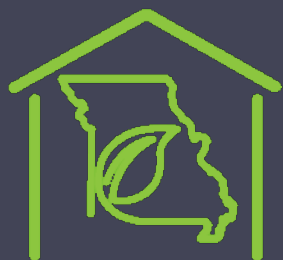
Contact Information

- Emily Levin | elevin@veic.org
- Becca Trietch | Becca.Trietch@energy.ri.gov

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Andy Popp

Missouri Division of Energy



Missouri Division of Energy Missouri Home Energy Certification (MHEC)

National Home Performance Conference
April 24, 2018



Department of Economic Development
Division of Energy

About 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.

Missouri Landscape

- Relatively low utility rates.
- Home rule state.
- No statewide energy codes.
- No Public Benefit Funds for EE/RE

Why Missouri Home Energy Certification (MHEC)?



- Decrease marketplace confusion.
- Increase the level of awareness.
- Provide meaningful recognition.
- Recognize both new and existing homes.
- Make it voluntary.

MHEC Highlights



- Involved stakeholders.
- Incorporates existing national and local residential EE programs to create a level of consistency with a single platform.
- Recognizes both new homes and existing homes.

MHEC Program Overview



Certified GOLD

The Missouri Division of Energy's Home Energy Certification Program

This home has achieved a superior level of energy performance and includes the following home energy components:

- Energy Star heat pump with SEER of 14.5
- R-49 insulation installed on attic floor
- R-15 insulation installed in conditioned basement band joist wall cavity
- Thermal envelope testing of 3ACH50

Home address:
1234 Main Street
Anywhere, MO 12345

Home Energy Auditor:
John Doe

Program Provider:
Program Name

System and score:
HES = 8 (or HERS = 65)

Certificate Issued:
June 3, 2014

Certificate Number:
0603141236

Lewis Mills
Director, Division of Energy

The Missouri Home Energy Certification (MHEC) Program is designed to provide for a voluntary approach to promote energy efficient homes through a clear and meaningful recognition program. For more information regarding the program go to <http://energy.mo.gov/energy/mhec>.

- Both new and existing single-family homes are eligible.
- Two certification levels: Gold and Silver.

MHEC Paths for Gold Certification

An eligible home must achieve one of the following:

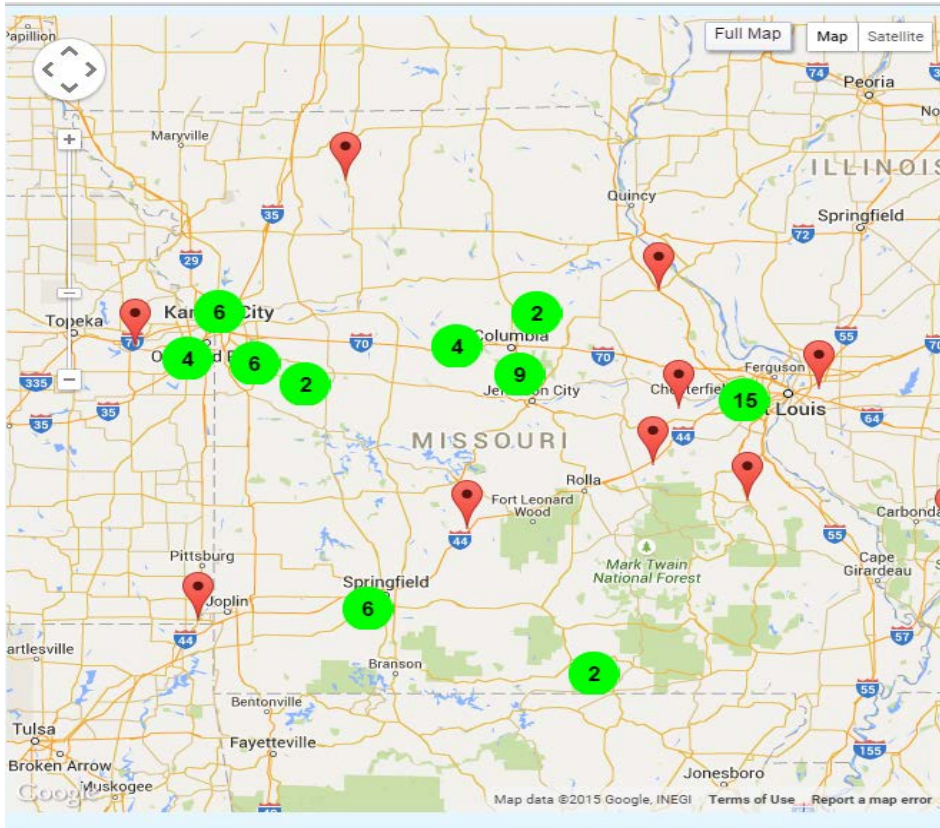
- Score of 65 or less on the HERS Index.
- Score of 8 or greater on the HEScore.
- Achieve the equivalence of the 2012 IECC for climate zone 4.
- Receive a Columbia Water & Light Efficiency Score backed by a HES of 8 or greater.
- ENERGY STAR Certified homes.

MHEC Paths for Silver Certification

An eligible home must achieve one of the following:

- All cost effective improvements in HES have been implemented.
- 20 point decrease on the HERS Index.
- 90% efficiency rating on the CWL Efficiency Score.
- 20% energy savings as modeled by an approved program or approved modeling software.

Missouri Certified Home Energy Auditors



Application Form
& Instructions

[http://energy.mo.gov/
energy/hea](http://energy.mo.gov/energy/hea)

MHEC Next Steps

- Work with Investor-Owned and Municipal Utilities to align energy efficiency programs.

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- Work with residential energy stakeholders to overcome technical and market barriers.

MHEC Next Steps

- Work with Investor-Owned and Municipal Utilities to align energy efficiency programs.
- Reach out to realtors, inspectors, appraisers, lenders and homebuilder organizations.
- Work with residential energy stakeholders to overcome technical and market barriers.
- Upgrade application platform to allow for auto-download of information. Make it easy.

SUMMARY

- The challenge
- Outreach is key – communicate - educate
- Every stakeholder is critical.
- Your help is important!

For More MHEC Information

- **Visit our program webpage:**

<http://energy.mo.gov/energy/mhec> or

email mhec@ded.mo.gov

- **Contact:**

➤ Andy Popp

(855) 522-2796

andy.popp@ded.mo.gov

Becca Trietch | Becca.Trietch@energy.ri.gov