



Northeast Energy Efficiency Partnerships

HELIX Summit

Home Energy Labeling Information eXchange

November 10, 2016



About NEEP

Mission

Accelerate energy efficiency as an essential part of demand-side solutions that enable a sustainable regional energy system



Approach

Overcome barriers and transform markets via ***Collaboration, Education and Enterprise***

Vision

Region embraces **next generation energy efficiency** as a core strategy to meet energy needs in a carbon-constrained world

One of six regional energy efficiency organizations (REEOs) funded by the US Department of Energy (US DOE) to link regions to US DOE guidance, products and programs

Empowered Consumers

EPA DOT

Fuel Economy and Environment

Gasoline Vehicle

Fuel Economy

26

MPG

Small SUVs range from 16 to 32 MPG. The best vehicle rates 99 MPGe.

22

city

32

highway

3.8 gallons per 100 miles

You save

\$1,850

in fuel costs over 5 years

compared to the average new vehicle.

Annual fuel COST

\$2,150

Fuel Economy & Greenhouse Gas Rating (tailpipe only)

7

1

10

Best

Smog Rating (tailpipe only)

6

1

10

Best

This vehicle emits 347 grams CO₂ per mile. The best emits 0 grams per mile (tailpipe only). Producing and distributing fuel also create emissions; learn more at fuel economy.gov.

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 22 MPG and costs \$12,600 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$3.70 per gallon. MPGe is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

fuel economy.gov

Calculate personalized estimates and compare vehicles

Smartphone QR Code™

Market Visibility

Refine Search

- ▲ For Sale (66)
- ▲ Make Me Move (30)
- ▲ Recently Sold (172)
- ▲ For Rent (20)

Price
 -

Monthly Payment ?
 -

Beds
 -

Baths
 -

Home type

- Single Family (31)
- Condo/Apartment (55)
- Multi Family (0)
- Manufactured (0)
- Lots/Land (0)

Listing type

- For Sale by Agent (65)
- For Sale by Owner (1)
- Foreclosures (0)
- New Construction (0)

Show only

- Open Houses
- Price Reductions
- Photos

Days on Zillow

Square Feet
 -

Lot Size
 -

2645 E Cactus Rd #A, Phoenix, AZ

▲ **For Rent:** from \$1,100/mo
 Pets OK: none

Beds: 1 Sqft: 425 Days on Zillow: 3
 Baths: 1.0 Lot: -- Built: 2001

11 Photos Details Save Contact

Sort by: Featured 1 2 3

2645 E Cactus Rd #A, Phoenix, AZ (Paradise Valley)

▲ **For Rent:** from \$1,100/mo
 Pets OK: none

Beds: 1 Sqft: 425 Days on Zillow: 3 Condo/Apartment
 Baths: 1.0 Lot: -- Built: 2001 2009 Property tax: \$2,441

11 Photos Save Contact

3936 E Yucca St, Phoenix, AZ (Paradise Valley)

▲ **For Rent:** \$1,250/mo
 Pets OK: --

Beds: 3 Sqft: 2,030 Days on Zillow: 26 Single Family
 Baths: 2.0 Lot: 9,965 Built: 1969 2009 Property tax: \$1,599

8 Photos Save

3227 E Pershing Ave, Phoenix, AZ (Paradise Valley)

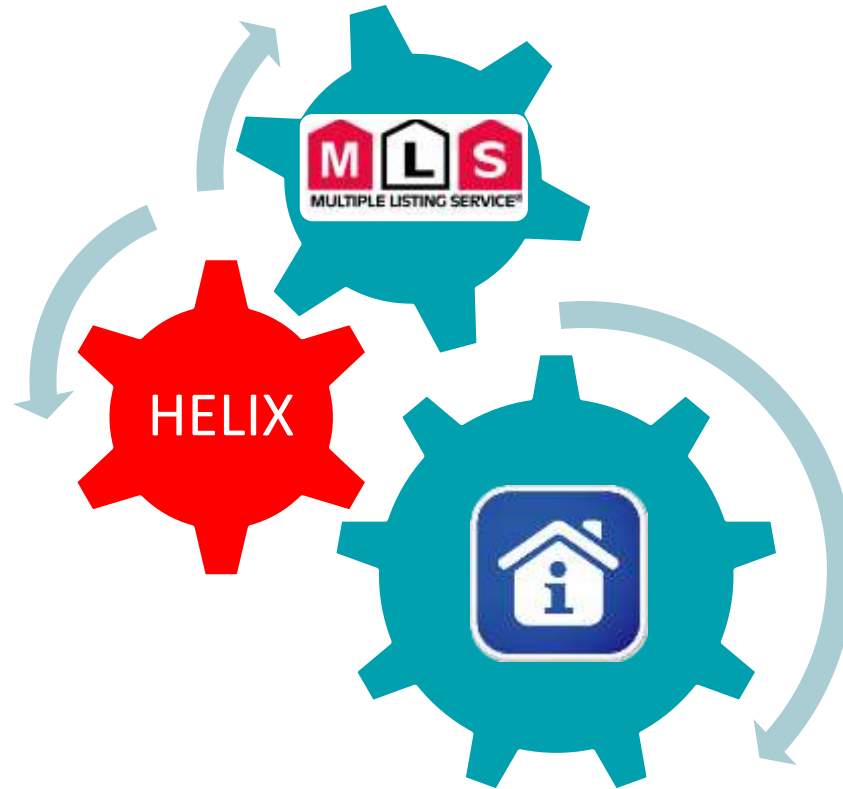
▲ **For Rent:** \$1,300/mo
 Pets OK: --

Our Goal

Work with support from northeast energy efficiency and real estate industry stakeholders to better incorporate a home's energy features into its transactional value by providing **consistent, verified, voluntarily-provided** home energy information to market actors where and when it is needed.



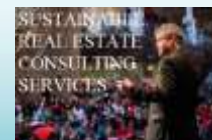
Our Goal



U.S. DEPARTMENT OF
ENERGY



**Vermont
Energy Investment
Corporation**





David St. Jean, U.S. DOE



U.S. DEPARTMENT OF
ENERGY



From Market Confusion to Transformation: Home Energy Score & HELIX



**Madeline Salzman
Home Energy Score
November 10, 2016**

Why Do Homeowners & Buyers Care About Energy Efficiency?

Helps Reduce Costs:

- ▶ [U.S. Census](#): On average, energy costs are higher than either property tax or insurance for U.S. homes at \$2,506 per year



Smart Investment:

- ▶ [Remodeling Report](#): Attic insulation achieves highest return on investment of all home improvement projects studied at 116.9%
 - ▶ Attic Insulation averaged the cheapest upgrade at \$1,268

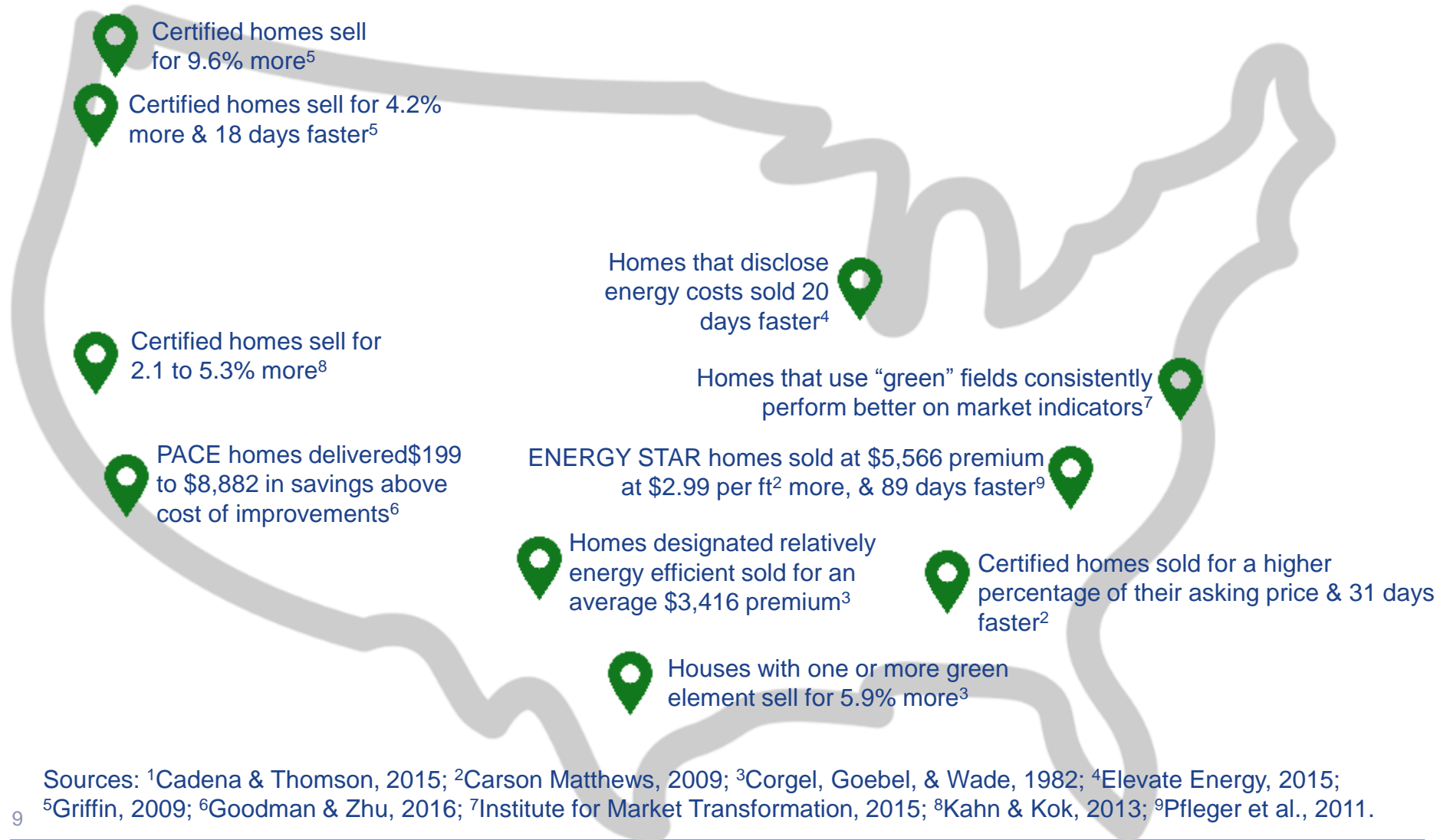


Improves Quality of Life:

- ▶ [NARI Report](#): Energy improvements are good investments that bring financial relief and “joy”
 - ▶ Insulation Upgrade: 61% say greater desire to be home, 95% same or increased sense of enjoyment, and 66% major sense of accomplishment



Studies Nationwide Show Energy Efficient Homes Sell for More, Faster



The Research Says: Homebuyers Value Energy Efficiency

Studies Show a Sales Premium of:



2% to 9.6% for designated energy efficient homes ^{2, 3, 7, 12}



\$2.99 to \$12.52 per square foot for every dollar saved on annual electricity bills from efficiency investments ^{5, 10, 15}



\$3,416 to \$8,882 for designated energy efficient homes ^{4, 8, 9, 12, 13, 14, 15}



Designated energy efficient

VS.



Comparable home

Sources: ¹Argeris, 2010; ²Cadena & Thomson, 2015; ³Carson Matthews, 2009; ⁴Corgel, Goebel, & Wade, 1982; ⁵Dinan & Miranowski, 1989; ⁶Elevate Energy, 2015; ⁷Griffin, 2009; ⁸Goodman & Zhu, 2016; ⁹Halvorsen & Pollakowski 1981; ¹⁰Horowitz & Haeri, 1990; ¹¹Institute for Market Transformation, 2015; ¹²Kahn & Kok, 2013; ¹³Laquatra, 1986; ¹⁴Longstreth, 1986;

¹⁰ ¹⁵Pfleger et al., 2011.

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**SOLD 18 TO 89
DAYS FASTER**



VS.



Designated energy efficient

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Providing Energy Information Can Be A Good Step

Elevate Energy, 2015: Chicago Homes that Disclose Energy Costs Spend Less Time on Real Estate Market

- ▶ Homes that provide energy costs: median 43 days on market; 66% closing rate
- ▶ Homes that did not provide energy costs: median 63 days on market; 53% closing rate

Hill et al., 2016: In EU, Canada, Australia, homebuyers appreciate having more information rather than less; poor ratings don't discourage home purchases, but do inform energy upgrades

- ▶ This helps them make the most informed decision possible, even if they will need to fix an energy feature of the home
- ▶ Analysis of European disclosure programs shows homebuyers do not use ratings to discourage home purchase, rather simply to inform sale (p. 11)
- ▶ 2013 EU Study: 2% - 6% appreciation in home value attributed to one-letter rating improvement

Source: Hill et al., 2016. Predicting Home Energy Rating and Disclosure Program Impacts for North American Jurisdictions. ACEEE Summer Study Paper.

If it Doesn't Impact Home Purchases, Why Do We Like Energy Information?

Knowledge is power!

- ▶ Energy information with recommendations influences new home owners into making energy renovations

Assessments of Home Energy Ratings on Conversion Rates

Jurisdiction	Portion of Buyers Influenced by Rating / Disclosure Report Recommendations When Making Renovations
Austin, TX	12% in first year of program (ACEEE, 2011)
Australia (ACT)	15% (Energy Consult, 2006)
France	37% (ADEME, 2012)
Portugal	17.5% (ADENE, 2015)
The Netherlands	22% (Murphy, 2014)

Source: Hill et al., 2016. Predicting Home Energy Rating and Disclosure Program Impacts for North American Jurisdictions. ACEEE Summer Study Paper.

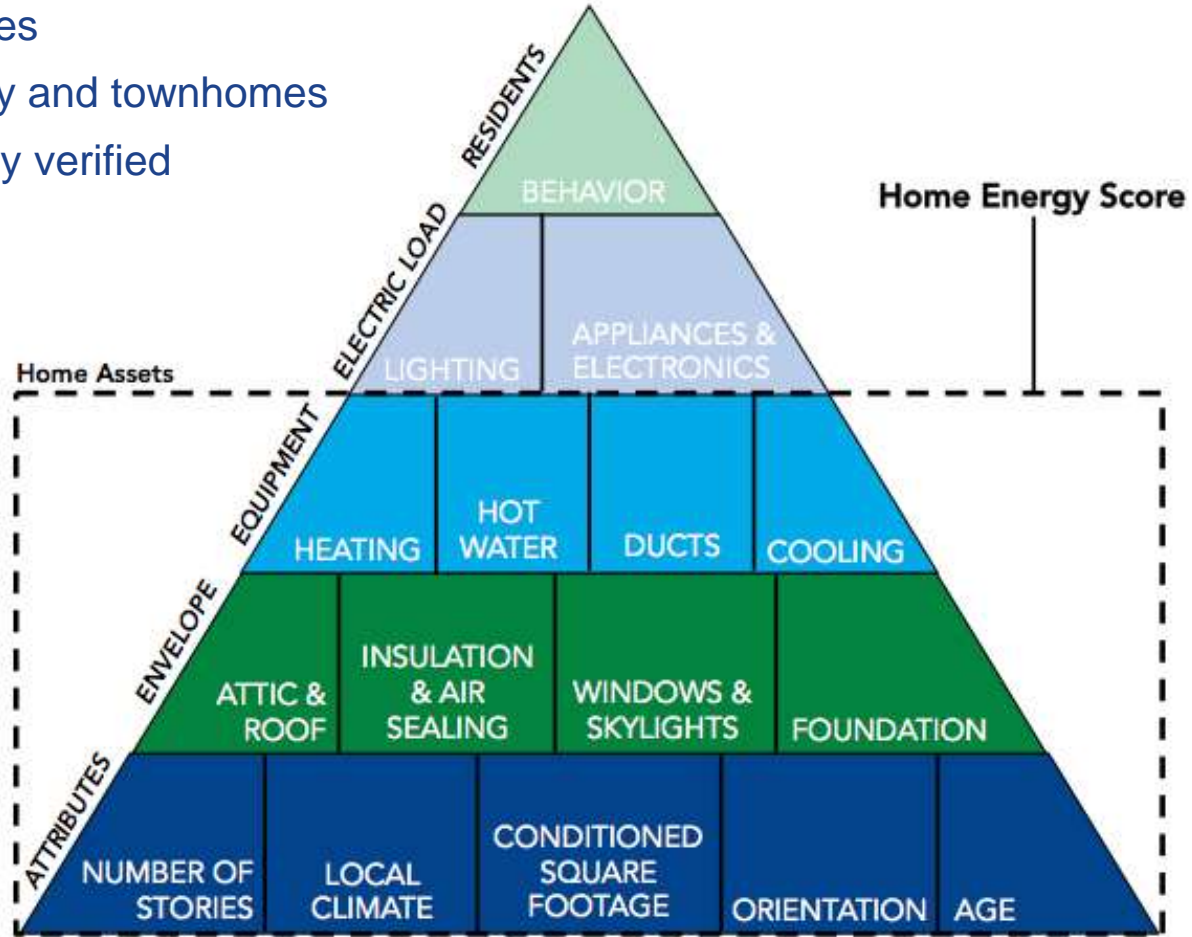
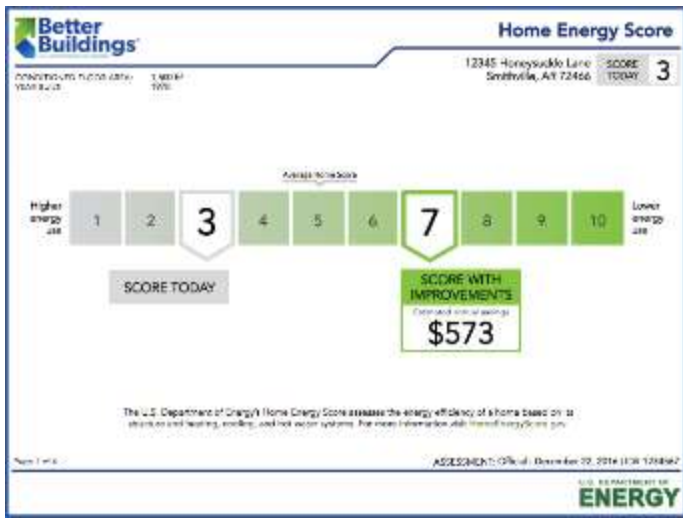
If People Want and Value Energy Data, Then Where is it?



Home Energy Score: Assets to Information

Home Energy Score is:

- ▶ A miles-per-gallon rating for homes
- ▶ Applicable to all U.S. single family and townhomes
- ▶ Created by DOE labs & third party verified



Home Energy Score: What It Means

The Score is more useful than looking at prior utility bills

- ▶ Assumes average weather for that location
- ▶ Controls for impacts due to occupant behavior by assuming “average” behavior for all homes

Score with Improvements:

- ▶ Reflects how the home will score if cost-effective efficiency improvements are made

Score of 1: High energy costs

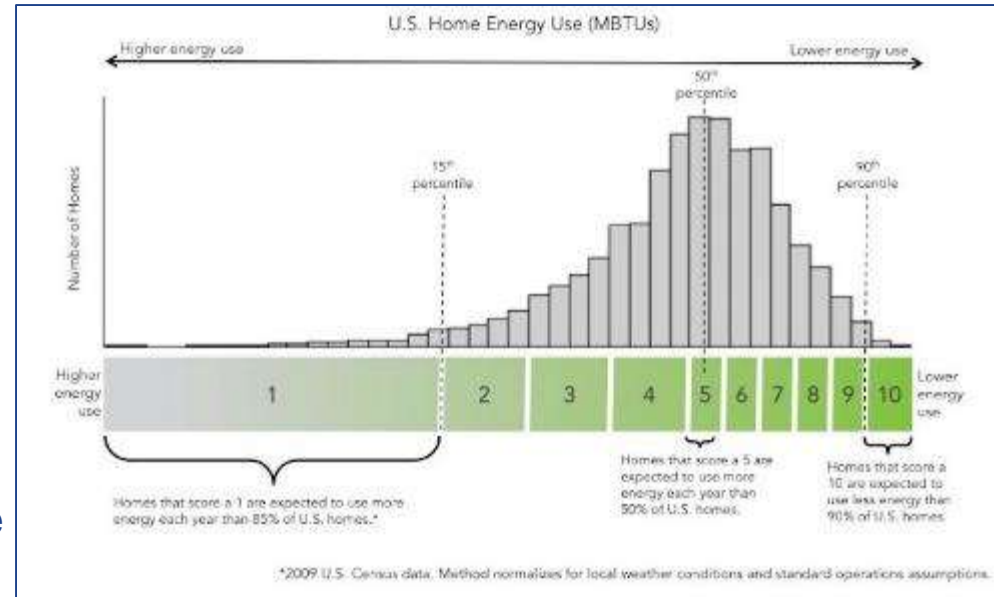
- ▶ These homes are expected to use more energy each year than 85% of U.S. homes

Score of 5: Average energy costs

- ▶ Approximately 50 percent of homes in the U.S. use less energy

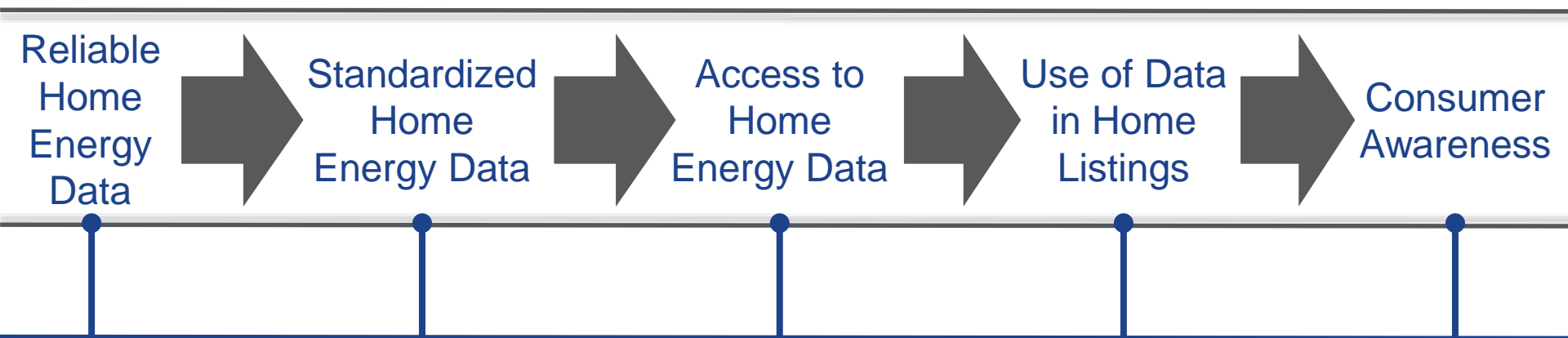
Score of 10: Low energy costs

- ▶ Homes expected to use less energy than 90% of U.S. homes; easier to keep living space comfortable



HELIX: From Scores to Impact

Home Energy Information Pipeline



Home Energy Score Highlights

More Data: 50,000 Scores!

- ▶ Accelerating data collection: upwards of 1,500 / month

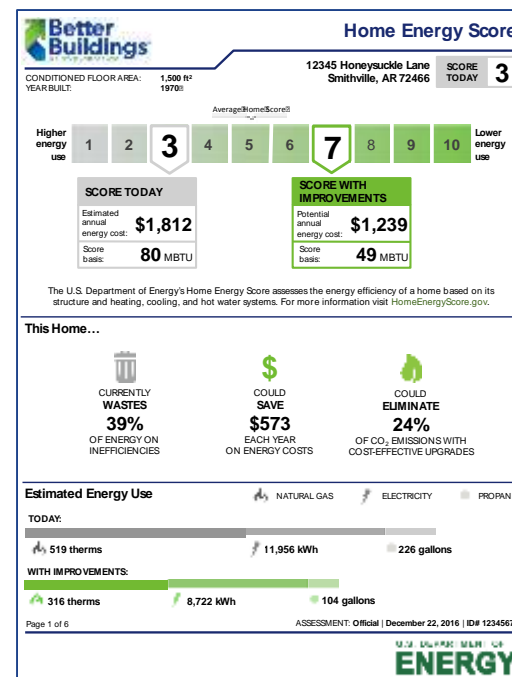
More Compatibility: 7 Software tools use API for streamlined data entry

- ▶ Compatible with all major hardware

More Customizability: semi-customizable labels for easier messaging

More Updates: new website is easier to navigate and provides access to more resources

- ▶ v2016 of Sim Training is easier to navigate, faster to complete
- ▶ Next version of Scoring Tool will include solar PV



Benefits from Valuing Energy Efficiency

Stakeholder Group	Value Proposition of Energy Efficiency & Energy Information
Homeowners, buyers, renters	<ul style="list-style-type: none"> ✓ Energy bill savings ✓ Home value ✓ Comfort and quality of life
Real Estate	<ul style="list-style-type: none"> ✓ Faster sales for disclosure ✓ Sales premium for high performance
Home Inspectors	<ul style="list-style-type: none"> ✓ Differentiation in marketplace ✓ Increase sales from additional service
Lenders, Banks	<ul style="list-style-type: none"> ✓ Differentiation in marketplace ✓ Increased lending opportunities
Appraisers	<ul style="list-style-type: none"> ✓ Differentiation in marketplace ✓ Minimize risk of inaccurate appraisals
State & Local Governments	<ul style="list-style-type: none"> ✓ Benchmark housing stock ✓ Achieve energy, climate goals
Home Insurance Providers	<ul style="list-style-type: none"> ✓ Mitigate and manage risk

The Road Ahead



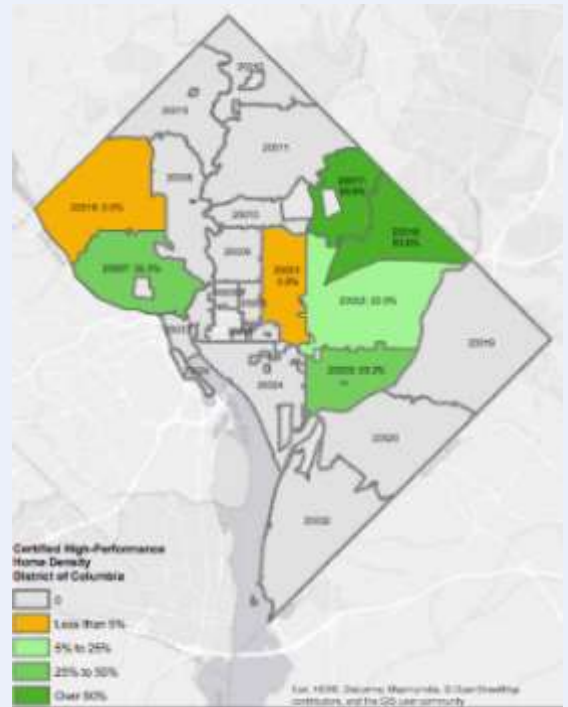
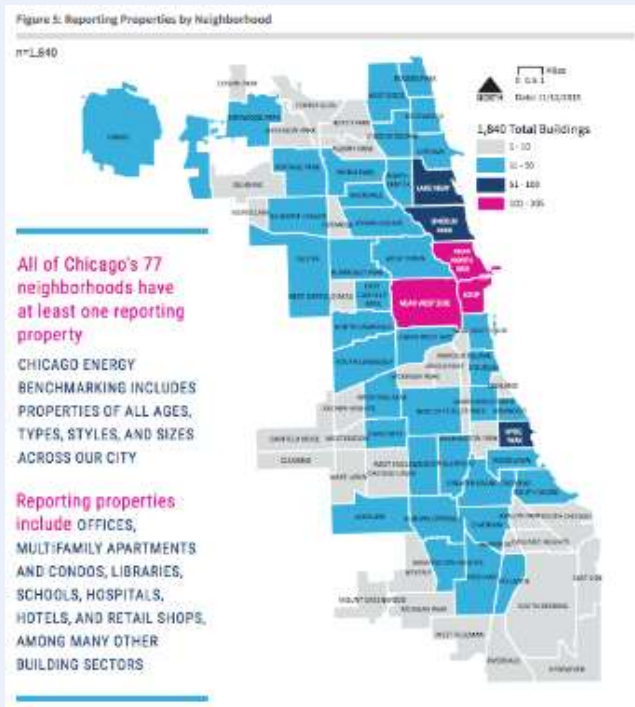
(aka, “What We Need From You”)

Showcase The Data

Maps and visuals help everyone understand data impact

Example Maps:

- ▶ Show significant & growing uptake in the area
- ▶ Provide a map with homes as data points or frequency of homes in the region
- ▶ Show that data is reliable and standardized



Real Estate Professional Education

Agents need resources to learn how to enter data fields correctly

- ▶ “0” HERS Rating = Perfect Score!
- ▶ “0” Home Energy Score = Nonsensical / Terrible Score!
- ▶ ENERGY STAR Appliances \neq Home ENERGY STAR Certification

Use our “Energy Efficiency for Real Estate Professionals” resource on Home Energy Information Accelerator website



\neq



What Can You Do?

Tell Efficiency Program Managers: Standardize Your Data!

- ▶ Work collaboratively to follow DOE, ANSI, and other industry standards
- ▶ Data without standards doesn't inform anyone

Tell Real Estate: Encourage all clients to get a Home Energy Score

- ▶ Improving energy efficiency of homes may qualify for financing & incentives
- ▶ If desired, list the Home Energy Score on the MLS. Fix it before you list it!
- ▶ Team up with home inspectors that offer the Home Energy Score

Tell Banks, Lenders: Include Energy Assets in Lending Practices

- ▶ Enables home energy data to be valued appropriately at time of sale
- ▶ Creates more demand for data acquisition

Tell MLS: Include “green fields”

- ▶ This will help standardize listing inputs and engage more real estate professionals
- ▶ Advocate for the MLS to achieve RESO's Silver Certification, which includes green fields

Resources Informing This Presentation

- ▶ Cadena, Anjelita, & Thomson, Thomas A. (2015). [An Empirical Assessment of the Value of Green in Residential Real Estate.](#)
- ▶ [Capturing Energy Efficiency in Residential Real Estate Transactions: Steps that Energy Efficiency Programs Can Take](#)
- ▶ Crawford, Jeremy. (2016). [Home Energy Efficiency Information: Coming to Your MLS by 2018.](#)
- ▶ Hill, Alex J., et al. (2016). Predicting Home Energy Rating and Disclosure Program Impacts for North American Jurisdictions. ACEEE Summer Study on Energy Efficiency in Buildings.
- ▶ [Home Energy Score for Real Estate Fact Sheet](#)
- ▶ Institute for Market Transformation (IMT). (2015). [Greening the MLS: Bringing High-Performance Homes to Light in the District of Columbia.](#)
- ▶ Kahn, Matthew E., Kok, Nils. (2013). The capitalization of green labels in the California housing market. Regional Science and Urban Economics.
- ▶ [National Association of REALTORS® 2015 Remodeling Impact Report](#)
- ▶ Pflieger, W., Perry C., Hurst, N., Tiller, J. (2011). [Market Impacts of ENERGY STAR® Qualification for New Homes.](#)
- ▶ U.S. Green Building Council [USGBC]. (2014). [LEED in Motion: Residential.](#)
- ▶ [Unlocking the Value of an Energy Efficient Home: A Blueprint to Make Energy Efficiency Improvements Visible in the Real Estate Market](#)

Thank You!

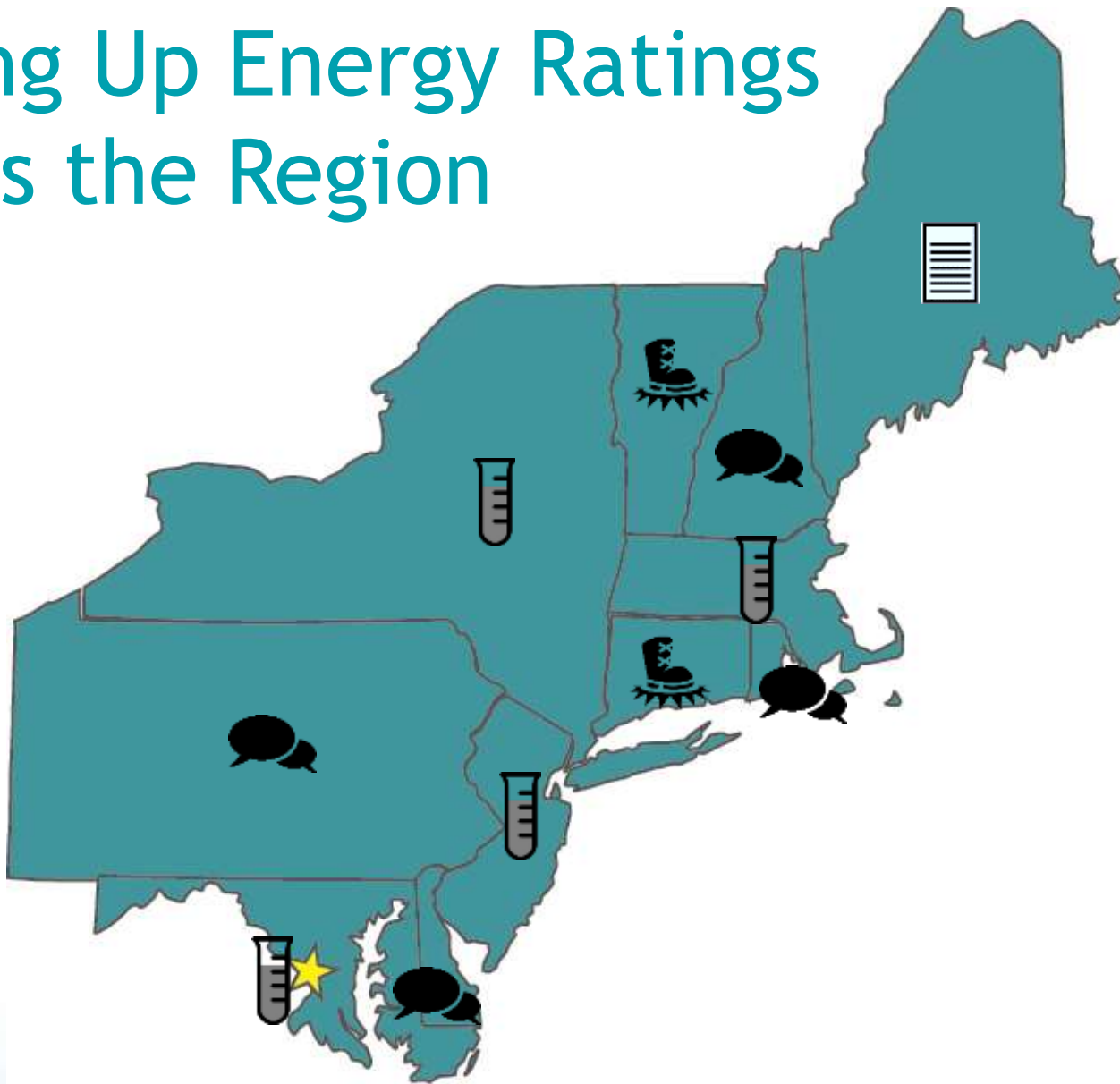


HomeEnergyScore@ee.doe.gov

Assessor@sra.com

www.HomeEnergyScore.gov

Scaling Up Energy Ratings Across the Region



Implementation



Legislation



Pilot



Discussion

CONNECTICUT

Project: CT15-890910 | FLEMING, mobile **EVERSOURCE**

Annual Savings Summary Savings Dashboard

kWh:	-647	Value(\$):	\$122	Goal Tracker (Project savings compared to goal(MMBTU)).
CCF:	-97.8	Value(\$):	\$195	

44.4 (253%)

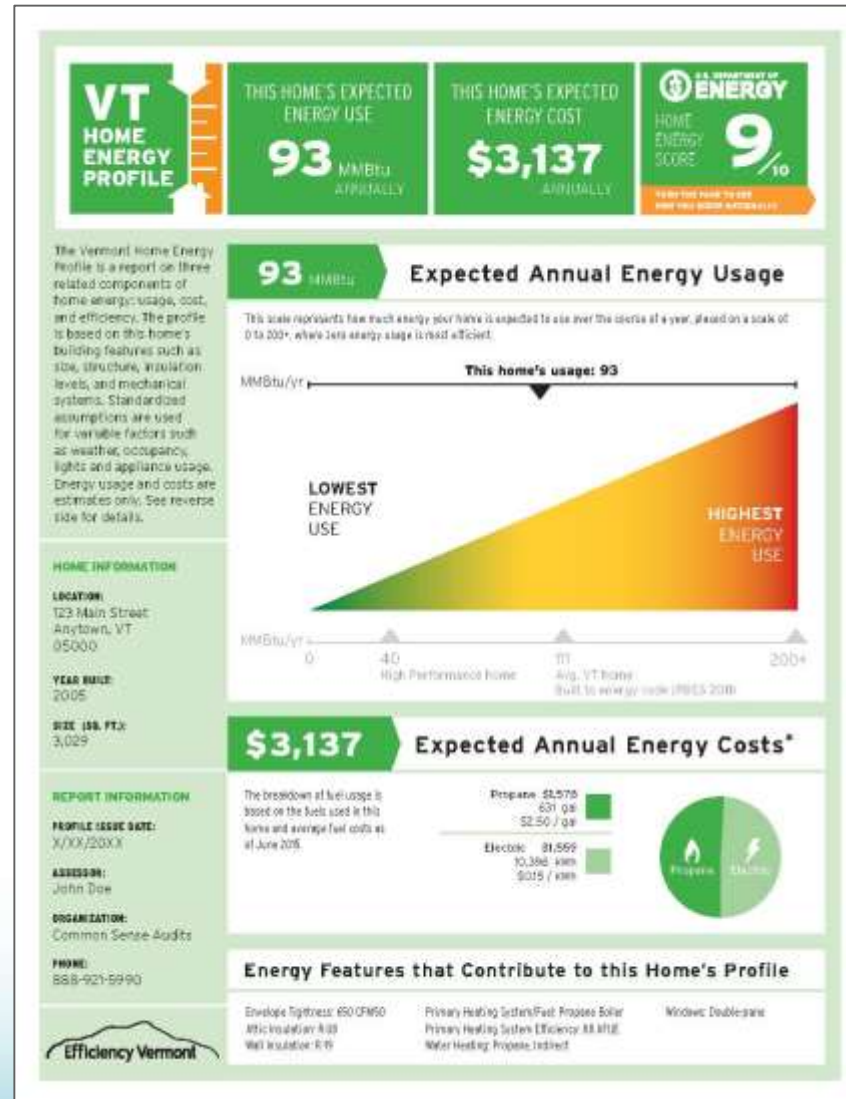
- Signature
- Quick Start
- Health & Safety
- Home Detail
- Pictures
- HVAC
- Infiltration
- Insulation
- Hot Water
- Lighting
- Windows
- Appliances
- Usage Billing
- Proposal
- Reports
- Sign Off

Home Energy Score

Swipe to Location View

Done

VERMONT





MASSACHUSETTS



YOUR HOME'S ENERGY PERFORMANCE SCORE

Home MPG, a program within Mass Save®, provides you with your home's "miles per gallon" energy performance rating, called an "energy performance score" or EPS. By helping you better understand your home's energy use, Home MPG helps you make smart decisions about implementing improvements that make your home more energy efficient and reduce your energy costs.

Your Home's ENERGY PERFORMANCE SCORE

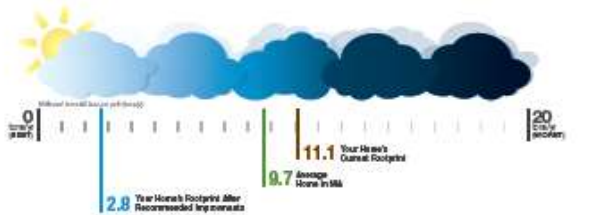
This score shows the estimated total energy use (electricity and heating fuel) of your home for one year. The lower the score, the better!



Estimated percentage of energy use by fuel type: Electric: <XXXX>, Natural Gas: <XXXX>

Your Home's CARBON FOOTPRINT

This score shows the estimated carbon emissions based on the annual amount, type, and source of fuels used in your home. The lower the score, the less carbon is released into the atmosphere to power your home.



Estimated average carbon footprint (tons/yr): Electric: <XX>, Natural Gas: <XX>

PREPARED FOR
<Customer Name>
<Customer Address>
<City>, <State> <Zip>
Ref #: <Site ID>

Year Built: <XXXX>
Sq Footage: <XXXX>
Bedrooms: <X>
Primary Heating Fuel: <XXXX>

EPS Report Date: <XXXXXXXXXX>
Energy Specialist:
<Energy Specialist Name>

DOLLARS & SENSE

Current Estimated Energy Costs **\$2000** For Year



ESTIMATED ENERGY SAVINGS
\$1150 For Year

Realize savings by implementing all of the recommended energy efficiency improvements.

SENATE DOCKET, NO. 633 FILED ON: 1/15/2015

SENATE No. 1761

By Mr. Downing, a petition (accompanied by bill, Senate, No. 1761) of Benjamin B. Downing, Kevin G. Honan, Stephen Kulik, Chris Walsh and other members of the General Court for legislation relative to home energy efficiency. Telecommunications, Utilities and Energy.

The Commonwealth of Massachusetts

In the One Hundred and Eighty-Ninth General Court
(2015-2016)

An Act relative to home energy efficiency.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

- 1 SECTION 1. (a) Notwithstanding any general or special law to the contrary, a seller or
- 2 agent acting on behalf of the seller shall complete an energy assessment through the Mass Save
- 3 program as overseen by the department of energy resources prior to the time of listing the home
- 4 for sale, provided that no additional fees shall be imposed or collected in connection with the
- 5 home energy assessment. This section shall apply to a seller of a single-family residential
- 6 dwelling or a multiple-family residential dwelling with fewer than 5 units, or a condominium
- 7 unit.
- 8 (b) The seller or agent acting on behalf of the seller shall disclose to a buyer or
- 9 prospective buyer information obtained from the energy assessment of the dwelling at the time of
- 10 listing or prior to the signing of a contract to purchase, whichever comes first.
- 11 (c) This section shall not apply to sales of residential dwellings in the following
- 12 circumstances: (1) a foreclosure or pre-foreclosure sale; (2) a deed or trustee sale; (3) a



RHODE ISLAND

State of Rhode Island
Office of Energy Resources

national**grid**





NEW HAMPSHIRE



GDS Associates, Inc.
Engineers and Consultants

PLEASE NOTE: Legislative Information **cannot** perform research, provide legal advice, or interpret Maine law. For legal assistance, please contact a qualified attorney.

Amend the bill by striking out the title and substituting the following:

'Resolve, Regarding Building Energy Efficiency and Carbon Performance Ratings'

Amend the bill by striking out everything after the title and before the summary and inserting the following:

'Emergency preamble. Whereas, acts and resolves of the Legislature do not become effective until 90 days after adjournment unless enacted as emergencies; and

Whereas, promoting renewable energy and energy efficiency are significant priorities of the federal American Recovery and Reinvestment Act of 2009; and

Whereas, significant funding from the federal American Recovery and Reinvestment Act of 2009 will be disbursed to the Public Utilities Commission as administrator of the United States Department of Energy State Energy Program in the immediate future for energy initiatives, including energy efficiency programs; and

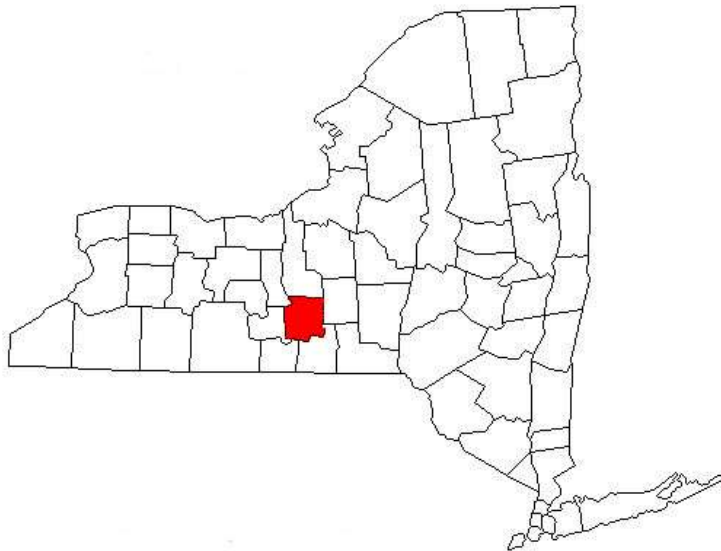
Whereas, in the judgment of the Legislature, these facts create an emergency within the meaning of the Constitution of Maine and require the following legislation as immediately necessary for the preservation of the public peace, health and safety; now, therefore, be it

Sec. 1 Building energy efficiency and carbon performance rating system.

Resolved: That the Public Utilities Commission, as administrator of the United States Department of Energy State Energy Program, in consultation with the stakeholder group convened pursuant to section 2, shall:

1. Develop or select a standardized rating system and reporting form for building energy efficiency and carbon performance;
2. Include the standardized rating system and reporting form in professional education and training programs sponsored by the Public Utilities Commission;
3. Encourage real estate professionals and other stakeholders to promote voluntary use of the standardized rating system and reporting form by residential and commercial property owners, including, but not limited to, voluntary disclosure of building ratings in the context of real estate transactions;
4. Encourage voluntary use of the standardized rating system and reporting form by large-scale property owners and managers, including the State, municipalities and other public and private entities; and
5. Develop a voluntary library or repository of ratings based on the standardized rating system and reporting form; and be it further

NEW YORK



7. Training

To make ratings broadly available in the market, training will need to be made available on a recurring basis, and Raters will need to be recruited. Training on the specific program, including the local submission and labeling process, would also be necessary.

5.3.6. Creating MLS Data Connection

There are two key database applications that need to be connected - a data repository for the information described above and the Realtor Multiple Listing Service (MLS).

There are systems available and in development that would aid in this connection. The U.S. DOE announced on September 15, 2015 an award providing three years of funding to Northeast Energy Efficiency Partnerships (NEEP) to support the development of **HELIX, or the Home Energy Labeling Information Exchange** in an effort to "expedite the creation of large-scale home energy labeling policies and programs that support the market valuation of energy efficiency in homes by making U.S. DOE Home Energy Score (HES) data accessible to local Multiple Listing Services (MLS) and other market interests". (Northeast Energy Efficiency Partnerships, 2015)



Figure 6: The Home Energy Labeling Information Exchange (HELIX) can facilitate the delivery of the score from the program database to the multiple listing service.

The DOE has also created an open source database application for managing information related to energy scores on buildings known as **The Standard Energy Efficiency Database Platform, or SEED**. This was created to support the management of benchmarking mandates for large cities but is now being adapted for use with residential ratings.

One key capability of this database is to manage energy data for large numbers of buildings. SEED has the capability to collect information from property assessment and other existing databases and match this information up with energy ratings submitted by qualified Raters (Figure 7).

SEED Platform Concept of Operations

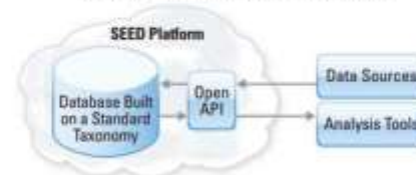


Figure 7: SEED Platform Concept of Operations



Home Performance Score is a tool to assess a home's energy consumption, cost and carbon footprint.

This report has been prepared for:
Emily Heerxxx

Au
Sq
c
Ye
Fu

Location:
**404 Main St
Dothan, AL 36301**

Home Performance Score is a tool to assess the energy consumption of a home. The better—a low HPS identifies a home as energy efficient with lower energy costs.

Estimated Monthly Energy Costs

\$182*

5-year savings potential:

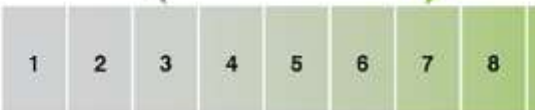
\$1,337*

Estimated average energy costs per month: Electric \$169, Natural gas \$13

Your home's current score **3**

Score with improvements **8**

Uses more energy



homeenergyscore.gov

The Home Energy Score is a national rating system developed by the U.S. Department of Energy. The Score reflects the energy efficiency of a home based on the home's structure, heating, cooling, and hot water systems. The Home Facts provide details about the current status and systems. Recommendations show how to improve the energy efficiency of a home to achieve a higher score and save money.

*Actual energy costs may vary and are based on many factors such as occupant behavior, weather and

Prepared By:
Joe Assessor
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Energy Assessment Co.
PO Box 325
Dothan, AL 36302

ARKANSAS HOME ENERGY SCORE



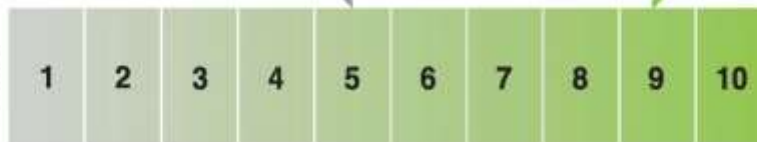
Home Energy Score



Your home's current score **5**

Score with improvements **9**

Uses More Energy



Uses Less Energy

LOCATION:
555 Magnolia Street
Little Rock, AR 77202

YEAR BUILT: 2002
SIZE (SQ. FT.): 2,210

SCORE ISSUE DATE:
July 15, 2015

ABOUT THE SCORE

The Arkansas Home Energy Score is a rating system developed by the US Department of Energy for Arkansas. The score reflects the energy efficiency of a home based on the home's structure and heating, cooling, and hot water systems. The information on this score card shows energy use and costs that are estimates only. Actual usage and costs may vary and are based on many factors such as weather and occupant behavior. See reverse side for technical information and details.

PROVIDED BY



Estimated Monthly Energy Costs*

\$208

Estimated Annual Energy Costs*

\$2,500

POTENTIAL ANNUAL SAVINGS

\$1,520

After recommended improvements.

TOP ENERGY SAVINGS OPPORTUNITIES:

Attic Insulation Upgrade

Insulate to R-38

Duct Sealing

Seal ducts to reduce air leakage

Heat Pump Upgrade

Add high efficiency heat pump (16 SEER)

TO FIND OUT HOW YOU CAN EASILY IMPROVE YOUR HOME'S ENERGY EFFICIENCY

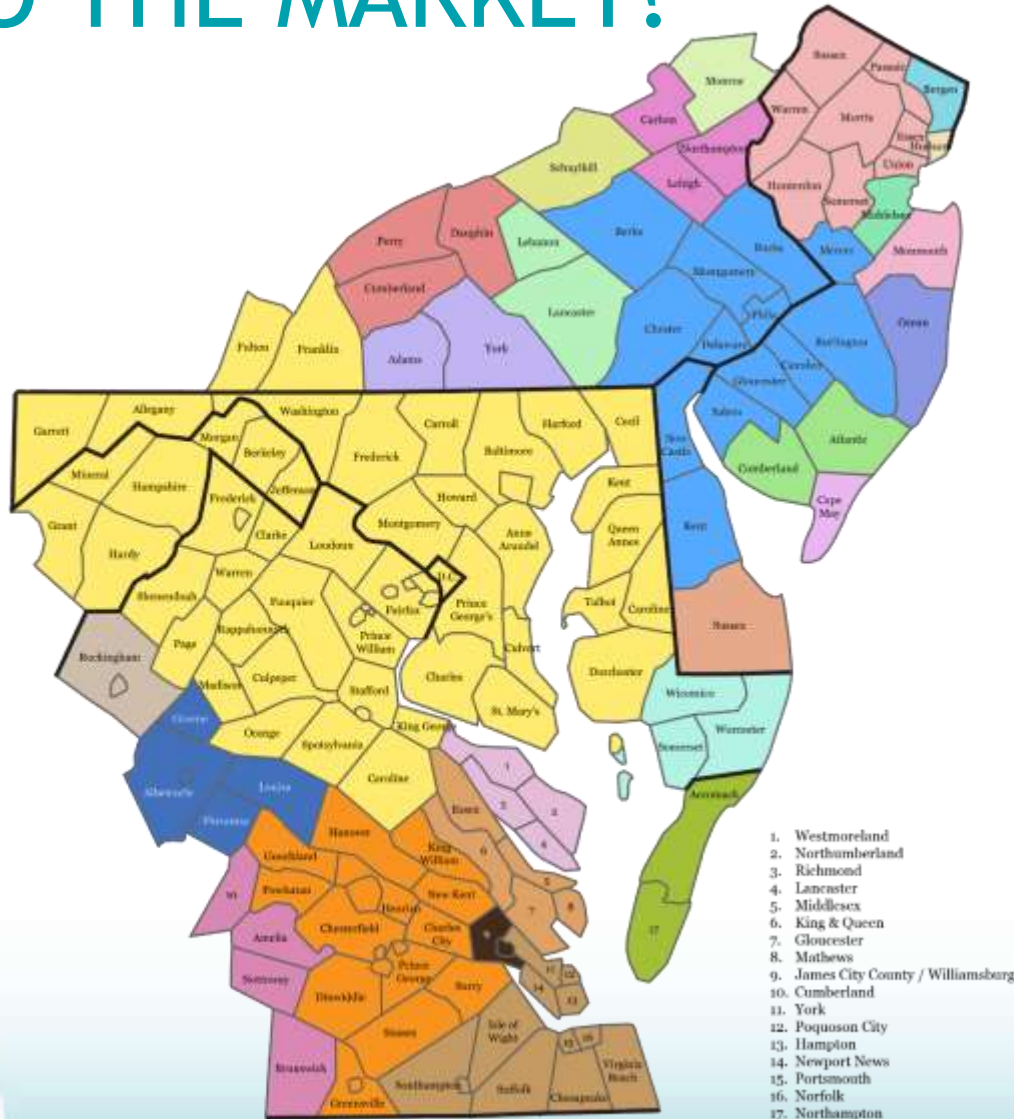
CALL (800) 555-1212 OR VISIT WWW.ARKANSASENERGY.ORG

HOW MUCH YOU CAN IMPROVE



For a complete list of upgrade opportunities for your home, please review the recommendations report.

BUT HOW DO WE GET THIS INFO INTO THE MARKET?





RESO's Data Dictionary & MLS Green Fields

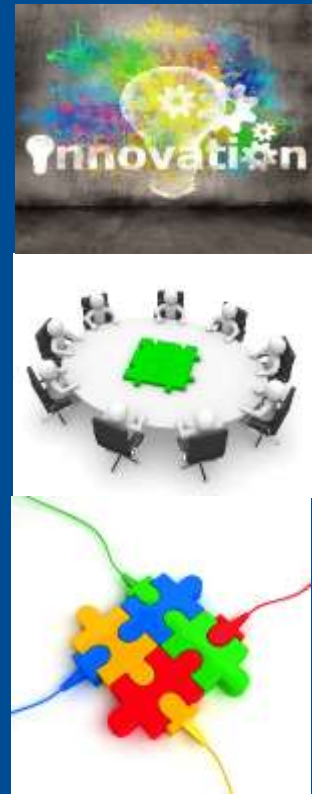
HELIX Summit
November 10, 2016



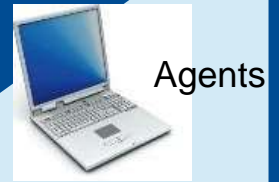
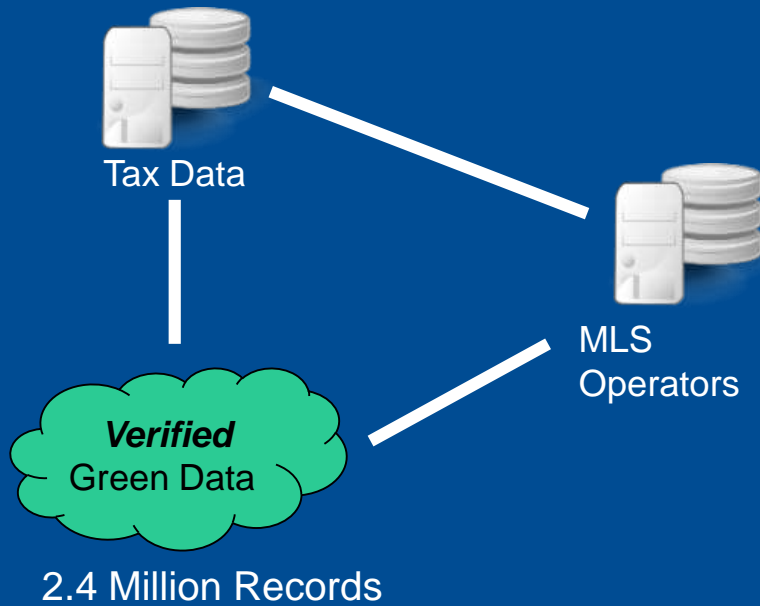
Jeremy Crawford
Executive Director
Real Estate Standards Organization

Real Estate Standards Organization

- RESO = Standards for Real Estate
 - Non-Profit Organization
 - Membership based organization with member categories for MLSs, Technology Vendors, Brokers and Associations
 - RESO's work product are Technical Data Standards
 - RESO Standards are Free to use and open to the public
 - Standards are created through Volunteer based Committees & Workgroups
- Multiple Listing Services adopt RESO standards including the RESO Data Dictionary and the RESO Web API



Green Multiple Listing Service Initiative Connecting Energy Data to Property Listings



Brokerages



Aggregators



The RESO Data Dictionary

- RESO Data Dictionary Servers as a “Rosetta Stone” for defining real estate fields
- RESO Data Dictionary globalizes most common fields with standard names, data types and definitions
- Fostering Technology Innovation, the RESO Data Dictionary Benefits Everyone
- RESO DD Wiki: [Http://ddwiki.reso.org](http://ddwiki.reso.org)



Home Energy Fields & Data Dictionary Field Levels

- MLS Home Energy field adoption paves the way for MLS Data Integration between Listings and Energy Data
- RESO Data Dictionary provides data mapping between MLSs and the Building Energy Data Exchange Specification
- Silver level designated fields include standardization of Green Fields
- MLSs must be in compliance by adopting the Data Dictionary's Silver level designated fields by January 1st, 2018 per NAR MLS Policy Mandates 7.90
- Over 275 MLSs have already certified on Silver or higher!



Home Energy Field & Lookup Values Examples

∨ Performance Group

∨ **GreenMarketing Group**

- GreenEnergyEfficient Field
- GreenEnergyGeneration Field
- GreenIndoorAirQuality Field
- GreenLocation Field
- GreenSustainability Field
- GreenWaterConservation Field
- WalkScore Field

∨ Performance Group

› **GreenMarketing Group**

∨ GreenVerification Group

- GreenBuildingVerificationType Field
- GreenVerification[Type]Body Field
- GreenVerification[Type]Metric Field
- GreenVerification[Type]Rating Field
- GreenVerification[Type]Source Field
- GreenVerification[Type]Status Field
- GreenVerification[Type]URL Field
- GreenVerification[Type]Version Field
- GreenVerification[Type]Year Field

∨ G - Lookup Fields

- › GreenBuildingVerificationType Lookups
- › GreenEnergyEfficient Lookups
- ∨ GreenEnergyGeneration Lookups
 - **Solar**
 - Wind
- › GreenIndoorAirQuality Lookups
- › GreenSustainability Lookups
- › GreenVerificationSource Lookups
- › GreenWaterConservation Lookups



GreenBuildingVerificationType Field

Created by RESO DD Workgroup on Jun 13, 2016

Field Name (Standard Name)²: GreenBuildingVerificationType

i Definition (May contain rules that must be observed)

The name of the verification or certification awarded to a new or pre-existing residential or commercial structure. For example: LEED, Energy Star, ICC-700. In cases where more than one certification have been awarded, leverage multiple iterations of the green verification fields via the repeating element method.

Group²: [Property Resource](#), [Structure Group](#), [Performance Group](#), [GreenVerification Group](#)

Simple Data Type²: String List, Multi

Suggested Maximum Length²: 1024

Synonym(s)²: GreenBuildingCertification, GreenBuildingVerification, GreenBuildingRating

Field (Element) Status²: Active

BEDES²:

Certification Level²: Silver

RecordID²: 100334

Lookup Values²

> [Click here to expand...](#)

Lookup Status²: Open with Enumerations

Lookup²: [GreenBuildingVerificationType Lookups](#)

Sug. Max Precision²:

Repeating Element²: Yes

Property Types²: [RESI](#), [RLSE](#), [RINC](#), [MOBI](#), [FARM](#), [COMS](#), [COML](#)

Payloads²: IDX

Status Change Date²: Jun 21 2016

Revised Date²: Oct 18 2015

Added in Version²:



Zero Energy Ready Home

Created by RESO DD Workgroup on Jun 13, 2016

Lookup Value²: Zero Energy Ready Home

From Lookup Field²: [GreenBuildingVerificationType Lookups](#)

i Definition (May contain conditions that must apply)

DOE Zero Energy Ready Home is a set of optional construction practices and technologies (above minimum code and ENERGY STAR Certified Home requirements) that builders can follow to ensure high-performance homes so energy efficient all or most annual energy consumption can be offset with renewable energy. Guidelines are outlined in the "DOE Zero Energy Ready Home National Program Requirements."

Synonym(s)²:

BEDES²: Assessment Program = "ENERGY STAR Certified Homes"

Lookup Status Change Date²: Jun 21 2016

References²: [RESI](#), [RLSE](#), [RINC](#), [MOBI](#), [FARM](#), [COMS](#), [COML](#)

Revised Date²: Sep 17 2015

Lookup Status[?]: Active

Added in Version²: 1.5.0

Lookup Field ID²: 347000

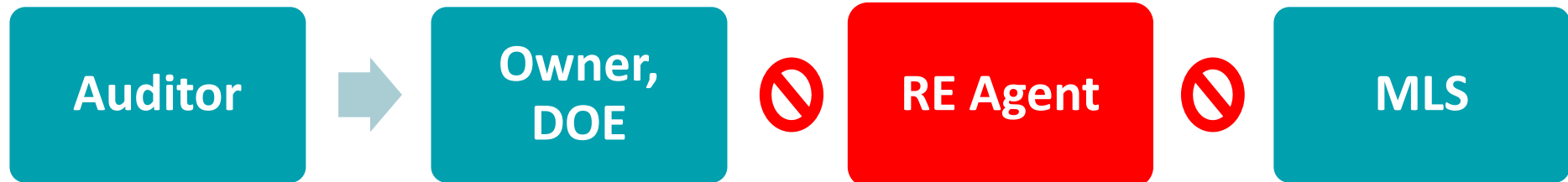
LookupID²: 347012

Right now:

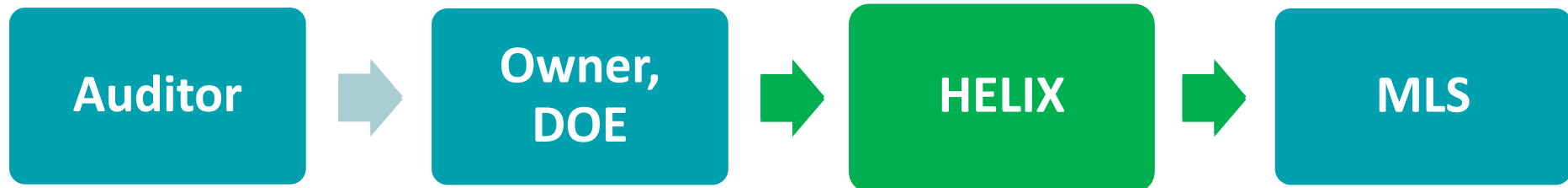
Home Energy Data?

MLS standardization?

Accessible?



2018: Info homebuyers/sellers want 
where they need it, *when* they need it.

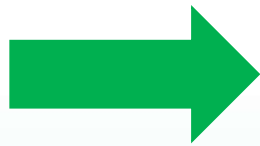


HELIX

Home Energy Labeling Information eXchange



- Database development and implementation
 - serving New England and New York
- Real estate community outreach, training
 - transparent stakeholder engagement
- Functionality beyond DOE HES
 - HERS? Certifications? Solar? More? TBD.





U.S. DEPARTMENT OF ENERGY
Home Energy Score



RESNET
HERS[®]
INDEX





Agenda

Opening: Everything you need to know about HELIX

Real Estate Track OR Technical Track

Governance and Privacy

Lunch

Breakout 1: Connecting the Region

Breakout 2: Bringing it Home

Closing: Building a Solution Together



Northeast Energy Efficiency Partnerships

Real Estate Track: What Value Will HELIX Bring to the Real Estate Industry?

HELIX Summit

Nov. 10, 2016

Who's in the Room?

- Real Estate Brokers/Agents/Realtors
- Appraisers
- MLS Staffers
- Energy Efficiency Implementers
- Utility Program Administrators
- Non-Profits
- Others?



The Issue

Some Things are Visible



The Issue

...Others are not



The High Performance Housing Market is Growing



- In 2015, 10% of newly constructed homes were ENERGY STAR certified - EPA
- U.S. homes built in 2000 or later use an average of 21% less energy on space heating than older homes - EIA
- The number of “zero energy homes” is expected to grow from 750 in 2015 to nearly 27,000 in 2025 - Navigant

Market Transformation

Customers want home energy information:

- NAHB survey:
 - Home buyers want energy efficiency information. 91% indicated that an Energy-Star rating for a home is “Desirable” or “Essential/Must Have”
 - Home buyers are willing to pay more upfront for lower utility costs. On average, they will pay an additional \$10,732 up front to save \$1,000 per year on utilities.

How to Make it Visible?

Provide the information to home buyers!



MAKING THE INVISIBLE VISIBLE:

What Value Will HELIX Bring to the Real Estate Industry?



Jeffrey Gephart
Vermontwise Energy Services, Inc.
Rochester, Vermont

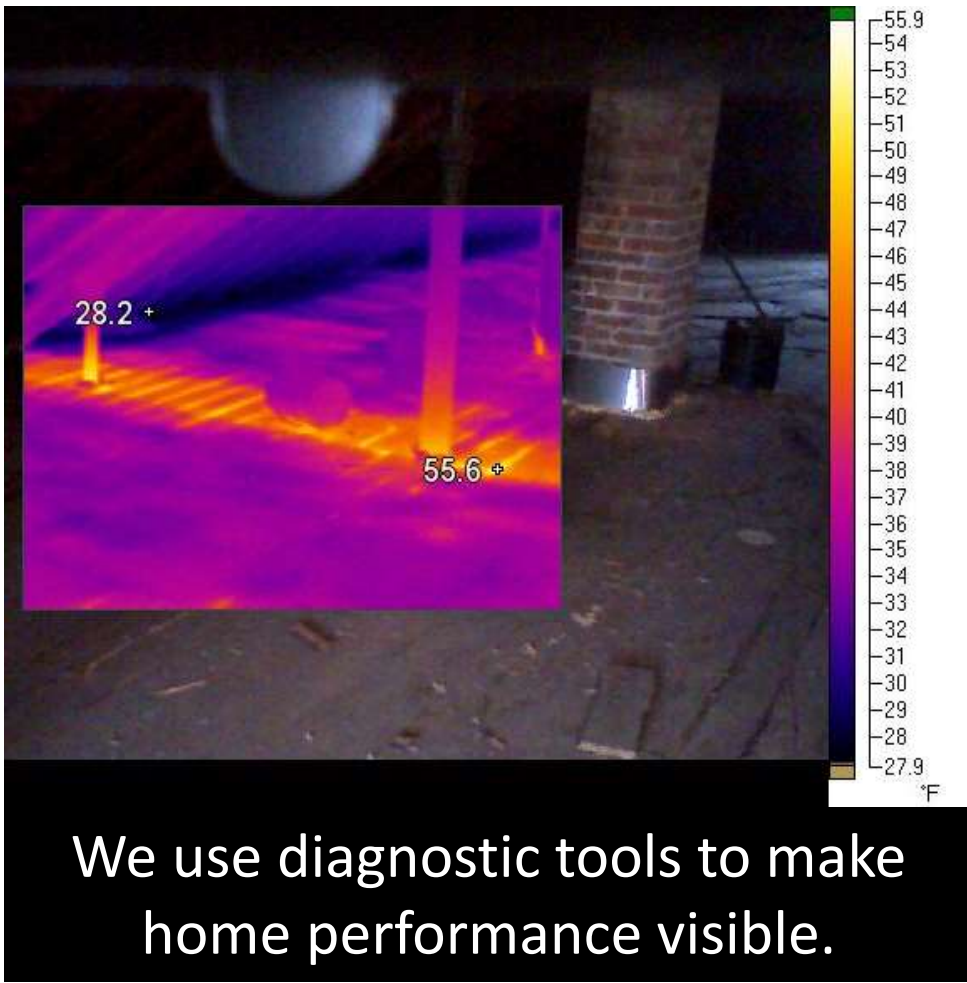
HELIX Summit
November 10, 2016
Boston, MA

ne
ep

A photograph of a wooden deck with stairs leading up to a house. The deck is made of light-colored wood and has a railing. The house in the background has white siding and windows.

Much of what makes a home highly energy efficient is invisible.





We use diagnostic tools to make home performance visible.



Jeffrey Gephart, Vermontwise Energy Services, Inc.

We go where few dare tread to understand and measure home performance and inspect building features.



Jeffrey Gephart, Vermontwise Energy Services, Inc.

How do we
make energy
efficiency
visible to real
estate
professionals
?





There's a
recipe for
engaging the
real estate
market.

FERNZ

Jeffrey Gephart, Vermontwise Energy Services, Inc.

Unlocking the Value of an Energy Efficient Home

A Blueprint to Make Energy Efficiency
Improvements Visible in the Real Estate Market

August 2013

CNT Energy
National Home Performance Council



Visible Value Blueprint



www.mredllc.com/comms/documents/Unlocking_the_Value_an_Efficient_Home.pdf

Jeffrey Gephart, Vermontwise Energy Services,
Inc.

Visible Value Blueprint: 7 Steps

1. **Document** energy efficiency features and improvements using consistent, standardized methods.
2. **Disclose inventories** of energy efficient homes to track supply.
3. Capitalize on existing [*and/or create*] **high-quality continuing education** and **designation training**.
4. Work with the **MLS** community to ensure that **data** about home energy efficiency improvements are incorporated **into for-sale listings**.
5. Ensure that the **data** about home energy efficiency improvements are incorporated **into the appraisal process**.
6. Develop standards and **IT solutions** that allow quicker and more **automated transfer of data**.
7. Work with partner **financial institutions** to ensure selection of **qualified appraisers**.

1. Document energy efficiency features and improvements using consistent, standardized methods.

Efficiency program sponsors, implementers, and participating contractors all document energy efficiency features.

It's been done for years with new construction, HERS Index, ENERGY STAR® Homes, etc.,

New methods to document energy performance for existing home are now in use (e.g., U.S. DOE Home Energy Score and other local means).



2. Disclose inventories of energy efficient homes to track supply.

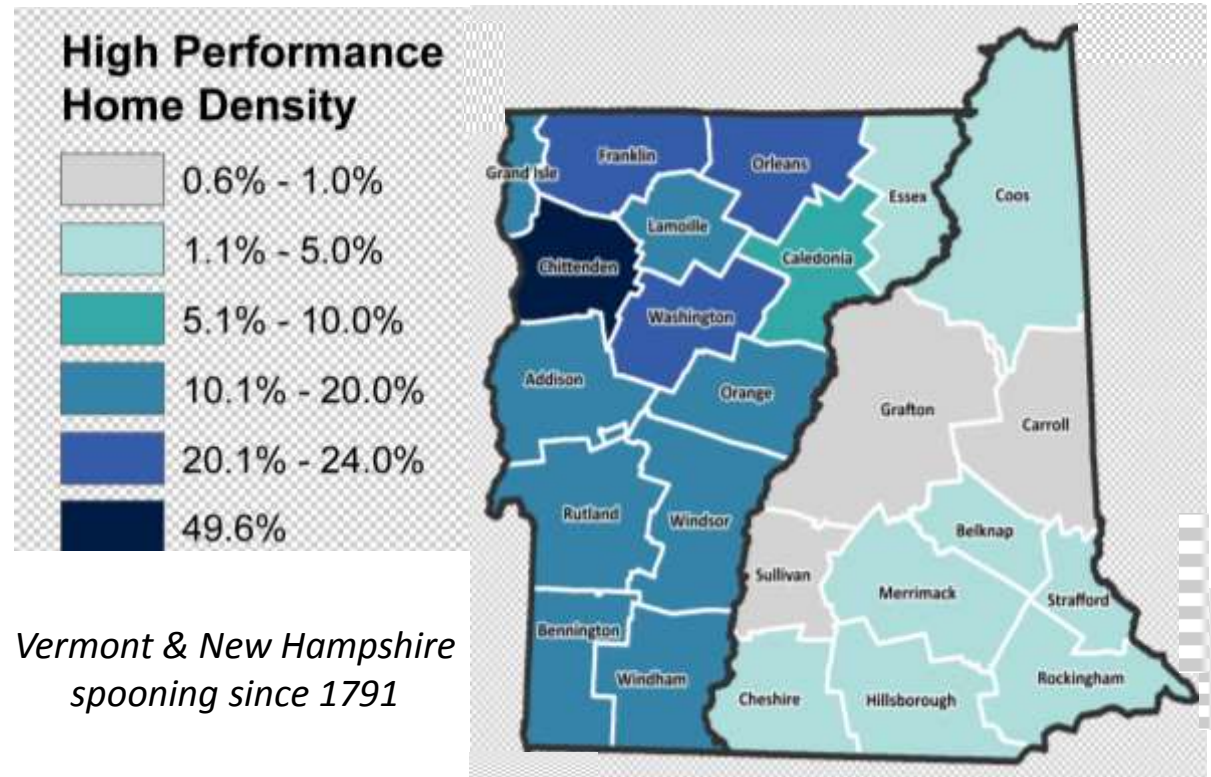
There is inventory

High performance new home percentage of all new homes, 2000 to 2012.

Efficiency
Vermont

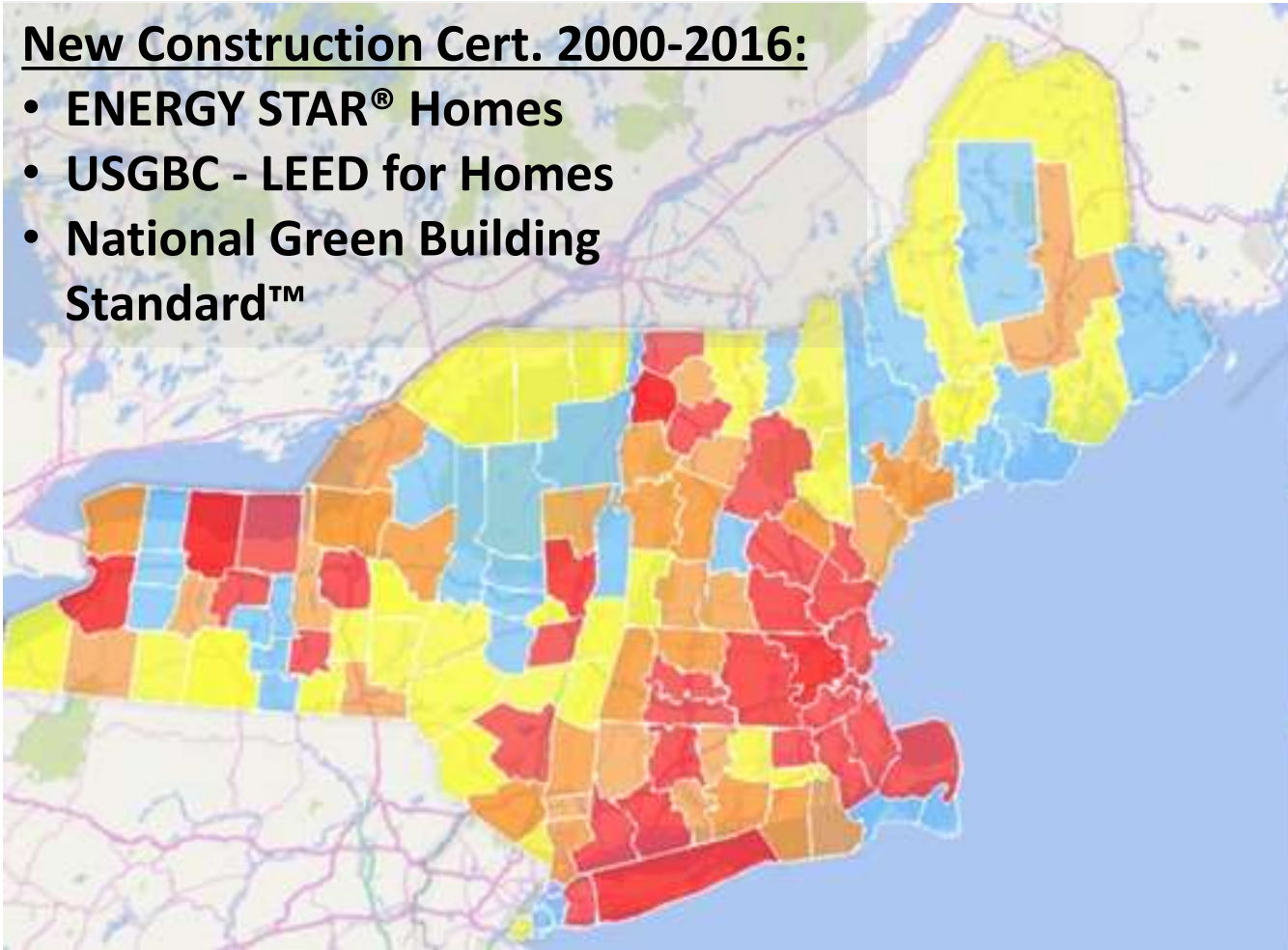
NH SAVES

Jeffrey Gephart, Vermontwise Energy Services, Inc.



New Construction Cert. 2000-2016:

- ENERGY STAR® Homes
- USGBC - LEED for Homes
- National Green Building Standard™



of Certifications by County Ranging From:



of Certifications by County Ranging From:



of Certifications by County Ranging From:

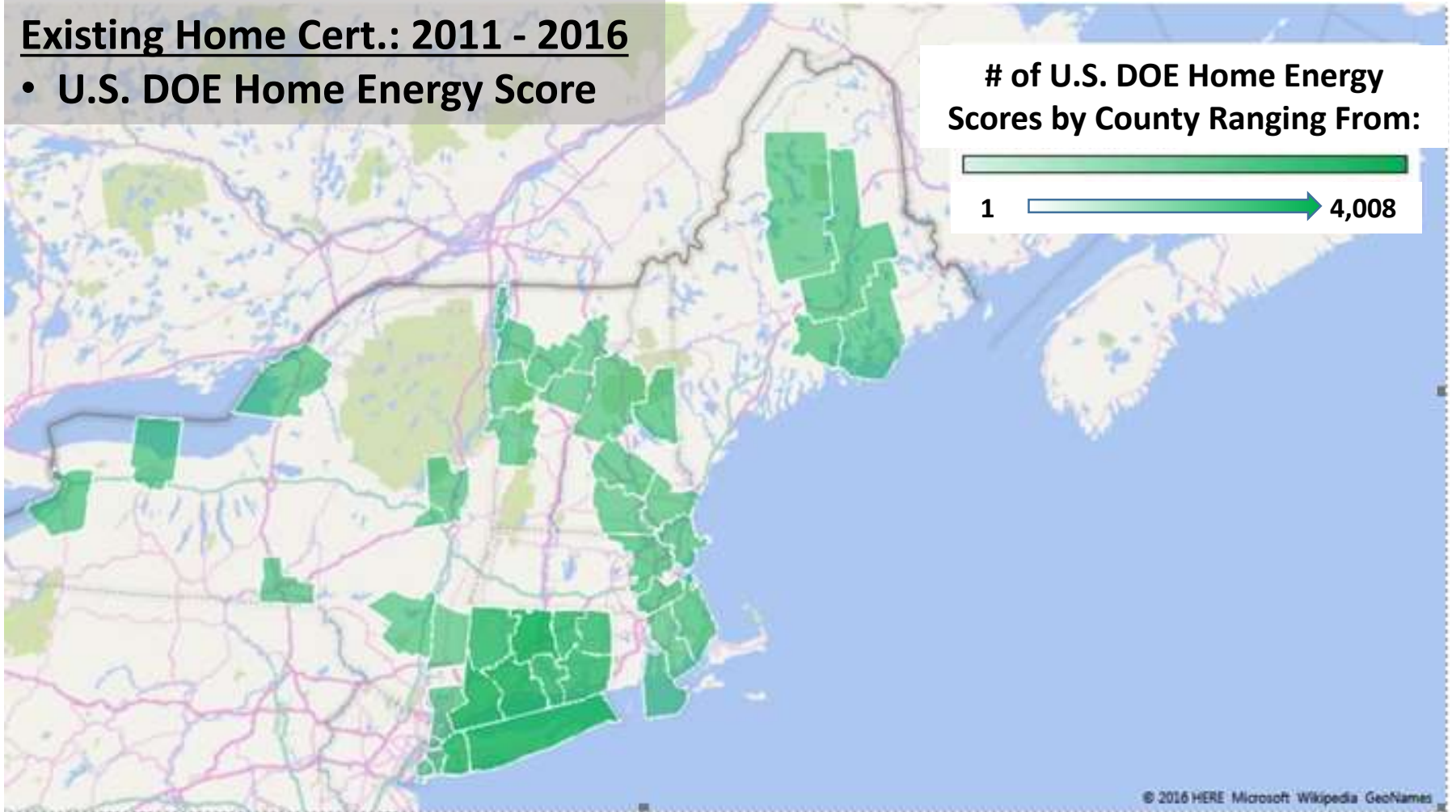


of Certifications by County Ranging From:



Existing Home Cert.: 2011 - 2016

- U.S. DOE Home Energy Score



3. Capitalize on existing *[and/or create]* high-quality continuing education & designation training.



Jeffrey Gephart, Vermontwise Energy Services, Inc.

3. Capitalize on existing [*&/or create*] high-quality continuing education & designation training.



March 28, 2017
Radisson Hotel, Nashua, NH
In partnership with Green Alliance

3. Capitalize on existing **(and/or create)** high-quality continuing education & designation training.

Facilitate (market, underwrite, and incentivize), more of the Appraisal Institute's **Valuation of Sustainable Buildings Professional Development Program** courses to gain more **Registry** listings of competent appraisers.

www.appraisalinstitute.org/education/education-resources/green-building-resources/



Sandra Adomatis, SRA, LEED
GA & author of *Residential
Green Valuation Tools*

Valuation of Sustainable Buildings Professional Registry

State	Residential Registry	
	Jun-16	Nov-16
CT	3	3
MA	3	3
ME	5	6
NH	1	4
NY	9	8
RI	1	1
VT	7	10

Current Vermont Residential Registry Listings

Name	Company	City, State	Accepts Fee Assignments
Charles M. Andrews, SRA	CMA Appraisals, Inc.	Montpelier, VT	Yes
Edward J. Friihauf, MAI	Friihauf Appraisal Associates	Montpelier, VT	Yes
Michael W. Gammal, MAI	Gammal Real Estate Services, P.C.	Essex Junction, VT	Yes
Michael F. Keller, MAI *	Keller & Associates, Inc.	Burlington, VT	Yes
Amy C. McClellan, SRA	Milne-Allen Appraisal Company	Sugar Hill, NH	Yes
Sean A. Sargeant, MAI, SRA	Sargeant Appraisal Service	Rutland, VT	Yes
George C. Sargeant, SRA	Sargeant Appraisal Service	Rutland, VT	Yes
Sylvia P. Rogers	Sylvia Rogers Real Estate Appraisal	White River Junction, VT	Yes
Robert B. Taylor	Bruce A Taylor Appraiser	Fairlee, VT	No
Charles Stott Woods *	Record Appraisal Service	St. Johnsbury, VT	Yes
John T. Waldo		Montpelier, VT	Yes

Jeffrey Gephart, Vermontwise Energy Services, Inc.

4. **Work with the MLS** community to ensure that data about home **energy efficiency** improvements are incorporated **into for-sale listings.**



RESO Approved 3rd party verified green fields now in the NH/VT statewide MLS

Green Building Verification (program)

Green Verification Body (sponsor)

Green Year Verified

Green Verification Rating (level achieved)

Green Verification Status (proposed or official)

Green Verification Metric (efficiency score)

Green Verification URL (web address for details)



RESO[®]
REAL ESTATE STANDARDS ORGANIZATION

Data Dictionary

5. Ensure that the **data** about home **energy efficiency** improvements are incorporated **into the appraisal** process.



Why?

Improved comfort and affordability are not always enough motivation.

Some homeowners want to, “get our money back when we sell the home.”

5. Ensure that the **data** about home **energy efficiency** improvements are incorporated **into the appraisal** process.

Provide Data

- **PV Value** (U.S. DOE Sandia National Lab developed online photovoltaic system production & value calculation tool - www.pvvalue.com/)
- Incremental cost (**Cost Data Addendum for High Performance Homes**):
http://seecsolutions.com/wp-content/uploads/2013/03/EHI_Cost-Data-Addendum_03-04-13.pdf
- Appraisal Institute's **Residential Green and Energy Efficient Addendum**

www.appraisalinstitute.org/assets/1/7/Interactive820.04-ResidentialGreenandEnergyEfficientAddendum.pdf

6. Develop standards and **IT solutions** that allow quicker and more **automated transfer of data**.



7. Work with partner **financial institutions** to ensure selection of **qualified appraisers**.

Appraised Value and Energy Efficiency: Getting it Right

Explains why there are issues with appraisals:

- Changes in market demand, energy code updates
- Fannie Mae, Freddie Mac, FHA requirements for appraiser competency

Explains possible solutions:

- How to prepare a loan applicant for the mortgage application and appraisal
- What a loan applicant needs to do when seeking the mortgage

<http://bcap-energy.org/appraised-value-and-energy-efficiency-getting-it-right/>

Appraised Value and Energy Efficiency: Getting it Right

While location, design, and price are a home buyer's main considerations, surveys show that buyers rank energy efficiency as one of the most desirable features, and importantly, when there is sufficient energy savings - data: they're willing to pay more for. However, energy efficiency can be overlooked in the appraisal process for a variety of reasons, including a lack of access to quality data, underwriting impediments, and appraiser qualifications. Many appraisers may not be aware of the unique features of an energy efficient home. However, there are many specially-trained appraisers who are qualified to assess the value of these features that are often hidden behind the drywall. One way to know that a home is built energy efficiently is to know which energy code it was built to.

According to the U.S. Department of Energy, homes built to the 2012 or 2013 International Energy Conservation Code (IECC) are 15-16% more efficient than those built to the 2009 IECC or earlier. They will be more comfortable to live in and have lower monthly energy bills.

Fannie Mae, Freddie Mac and FHA guidelines require appraisers to consider the energy efficient features of the home, and if the market supports an adjustment, in the appraised value, one must be made, but an average appraiser won't take this into account if they aren't aware of it.



A ready-made solution exists.

Fannie Mae, Freddie Mac and FHA guidelines require lenders to choose competent appraisers who have the requisite knowledge required to perform a professional quality appraisal for the specific geographic location and particular property type.

Appraisers who are specially trained on energy efficient / high-performing homes will analyze market trends relating to special energy-efficiency features. You can access a list of qualified appraisers at the [Valuation of Sustainable Buildings Professional Development Program Registry](#).

What can builders do?

Builders can help the buyer assure a competent appraiser is selected by doing these things:

1. Complete and provide buyers with the [Residential Green and Energy Efficient Addendum form](#).
2. Provide a copy of a complete Home Energy Rating System (HERS) report (if available).
3. Prepare the buyer to notify the lender that they require a competent appraiser for this special type of construction; add your logo and provide a copy of the directions on the next page.
4. Add your logo, the property address, and contact info to the attached letter. Direct your buyer to give the letter (along with 1 and 2 above) to their lender.



Jeffrey Gephart, Vermontwise Energy Services, Inc.

Appraised Value and Energy Efficiency: Getting it Right - Letter Templates

FOR BUYERS:

ASSURING A COMPETENT APPRAISER FOR YOUR NEW HOME

Congratulations on choosing an energy efficient, high-performing home!

Your new home was built to higher energy efficiency standards that will improve your quality of life. Your home will be more comfortable to live in and have lower monthly energy bills than other newer homes on the market. According to the U.S. Department of Energy, homes built to the 2012 or 2015 International Energy Conservation Code (IECC) are 15-16% more efficient than those built to the 2009 IECC or earlier. Some of your home features may include:

- More wall and ceiling insulation to keep conditioned air inside your home
- Windows that keep the heat out in the summer months to improve comfort
- Fewer drafts and air leaks, which improves indoor comfort

What You Need To Know Regarding the Loan/Appraisal Process

As part of the typical loan process, lenders randomly assign an appraiser to determine the appraised value of a new home. However, yours is not a typical new home – it is a high-performing building with unique features. Fannie Mae, Freddie Mac and FHA guidelines require appraisers to be competent in the property type they are appraising. If you do not clearly identify the property as a special property type requiring a competent appraiser trained in energy-efficient, high-performance homes, a typical appraiser will be assigned, and these features may not be taken into account, which will put your appraisal at risk of not being competently appraised.

What You Need To Do

Provide your lender with three things provided to you by your builder:

FOR LENDERS

Dear lender,

The new home located at: _____ is a special property type. It is an energy efficient, high-performing home that meets the stringent energy efficiency requirements of the code checked below:

- ___ 2012 International Energy Conservation Code (2012 IECC)
- ___ 2015 International Energy Conservation Code (2015 IECC)

A copy of the Green and Energy Efficient Addendum form, and the HERS report (if available) should be included with the appraisal engagement letter. Fannie Mae, Freddie Mac and FHA guidelines require lenders to choose competent appraisers who have the requisite knowledge required to perform a professional quality appraisal for the specific geographic location and particular property type. As a high-performing, energy efficient home, it requires an appraiser that is competent to assess the value of the green and/or energy efficiency features in the local real estate market.

You can access a list of qualified appraisers at the *Valuation of Sustainable Buildings Professional Development Program Registry*, available at http://www.myappraisalinstitute.org/findappraiser/green_sustainability_residential.aspx. These specially trained appraisers have completed 28 hours of education and passed three exams. If the appraisers on your panel are not on this list, they can complete 14 education hours online to get started: http://www.myappraisalinstitute.org/education/course_descrb/Default.aspx?prgrm_nbr=826&key_type=CO

<http://bcap-energy.org/appraised-value-and-energy-efficiency-getting-it-right/>

Jeffrey Gephart, Vermontwise Energy Services, Inc.

7. Work with partner **financial institutions** to ensure selection of **qualified appraisers**.

Course on Valuating Solar Promoted by VT Green Home Alliance



The Vermont Green Home Alliance is promoting a course to aid lenders, appraisers and others in the [Residential & Commercial Valuation of Solar](#) (read more or register via the link). It is one of three courses required for a listing on the Appraisal Institute's [Valuation of Sustainable Buildings Professional Registry](#) (appraisers do not need to be Appraisal Institute members to be Registry listed). Participation in the April 28th-29th course in Concord, NH provides 15 continuing education credits in Vermont and New Hampshire.

In an effort to help lenders, builders and others prepare for increasing levels of high performance new home construction and energy efficiency, the Vermont Green Home Alliance is also distributing [Appraised Value and Energy Efficiency: Getting It Right](#). Developed by the Appraisal Institute and Building Codes Assistance Project (and endorsed by the National Association of Home Builders), this short piece explains to real estate professionals and lenders why the appraisal of high performance homes is a complex appraisal assignment and, for architects, builders, and home performance contractors, how to proactively prepare customers for loan applications and appraisals.

AVCU is a member of the Vermont Green Home Alliance, which is an alliance of collaborating trade organizations and businesses working to educate real estate professionals and related persons about energy issues and to share accurate energy efficiency and green building information with the real estate market.

Association of Vermont Credit Unions promoting the Appraisal Institute's Residential and Commercial Valuation of Solar course and Appraised Value and Energy Efficiency: Getting It Right.

Jeffrey Gephart, Vermontwise Energy Services, Inc.

What Value Will HELIX Bring to the Real Estate Industry?

Auto-population of
enables:

- Quick and accurate
providers to the
 - Less time spe
 - Reduced liabi
 - Not over mar
- Broader view of
- More rationale decision making buy buyers and sellers



IX into the MLS

efficiency service

f information

y

ors®

That's how we make the invisible visible

Thank you

Jeff Gephart

Vermontwise Energy Services, Inc.

Rochester, VT

802.767.4501 - vtwise@together.net





Northeast Energy Efficiency Partnerships

Real Estate Track: What Value Will HELIX Bring to the Real Estate Industry?

Craig Foley



What is the potential value that HELIX brings to the table?



Lets take a look at current reporting of HPH

What is the potential value that HELIX brings to the table?



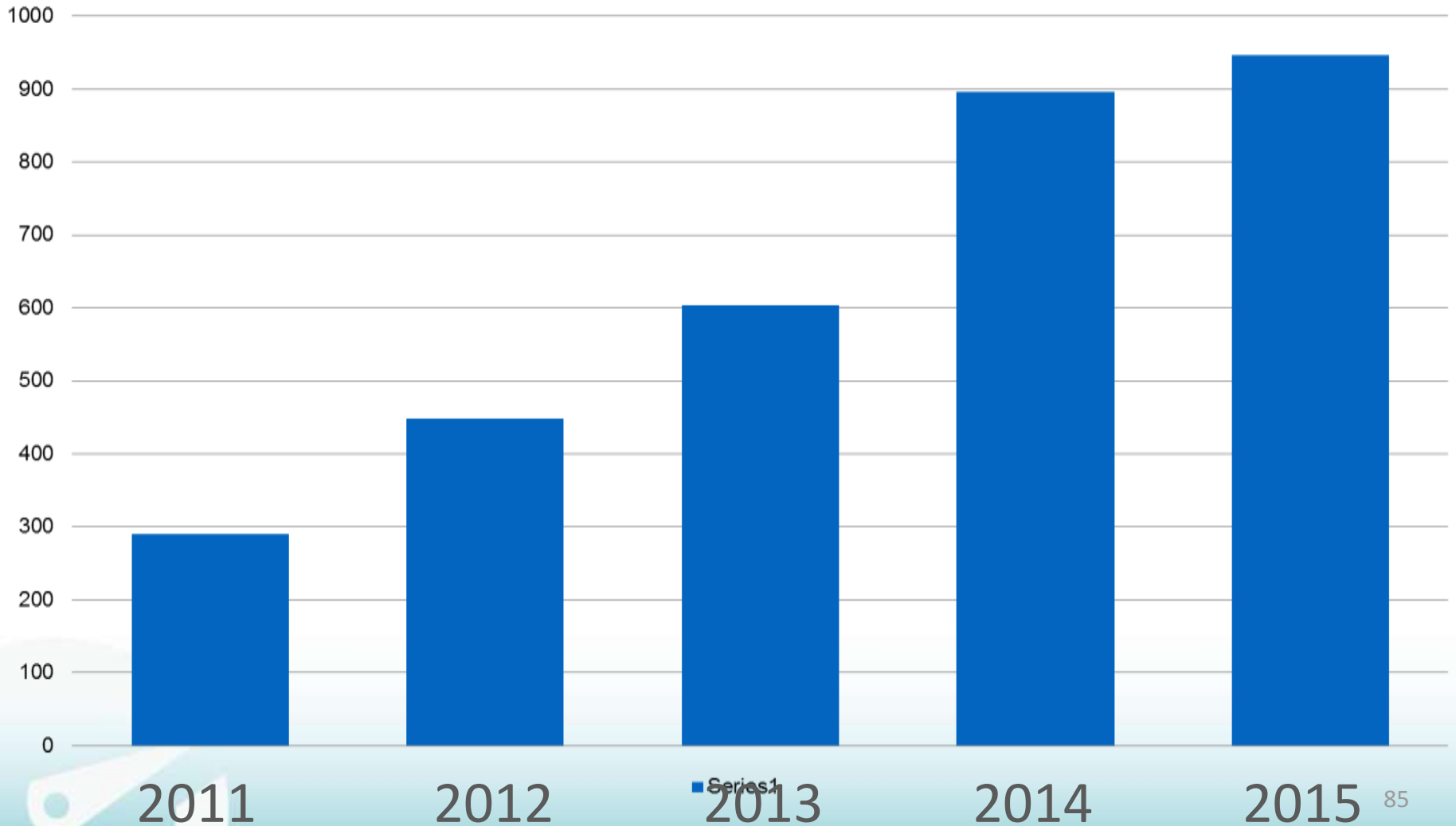
Lets take a look at current reporting of HPH

- **Poll: Energy Efficiency is America’s No. 1 Housing Concern, Jan 2015**
- “the **No. 1 unmet housing concern**, which the **Demand Institute** that carried out the poll defined as the “**satisfaction gap**” between what respondents actually have and what they said was important, was not as easily expected: **energy efficiency.**”
- “Based on these numbers, **energy efficiency was the housing concern with the largest gap between the rates of importance and satisfaction** – beating out consumer needs and wants for updated kitchens, storage space, safe neighborhoods, affordability, landlord responsiveness and more.”

What is the potential value that HELIX brings to the table?



EE used in remarks



What is the potential value that HELIX brings to the table?



Lets take a look at current reporting of HPH

- Evidence under-reporting of green data
 - 2014 report on HPH marketplace under-reporting green certified condos and sf homes
- Evidence of potential green-washing (probably unintentional)
 - 2015 HERS Index Score added as a data field in MLS PIN
 - How is the field being used?

What is the potential value that HELIX brings to the table?



What's the value add?

To the consumer looking for the HPH product

To the appraiser searching for valid HPH comps

To listing agents listing HPH

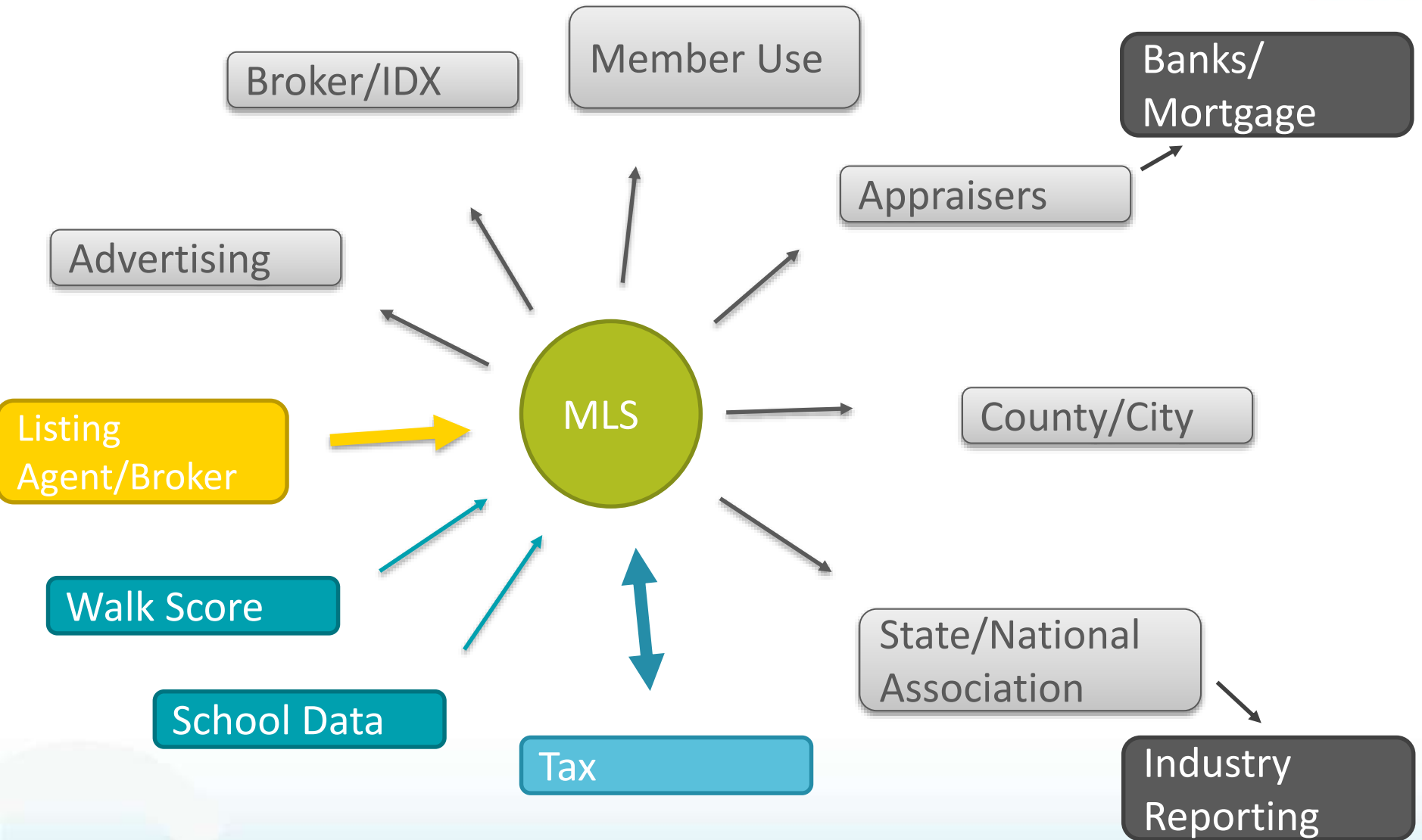
To MLSs

Compliance

Jan 1, 2018
“Silver”
compliance
includes green
data fields



For home buyers, they will be able to learn more about the energy efficiency features of homes, including features such as completing Home Performance with Energy Star, certification to LEED for Homes or the actual Home Energy Score achieved, for example.



The elephant in the room?

Is this too much for the RE industry to handle?

The elephant in the room?

Will the addition of these data points threaten to make the real estate transaction even more complicated?

Will the data be reliable and easy for MLSs to access?

Will the data jeopardize homeowner privacy?

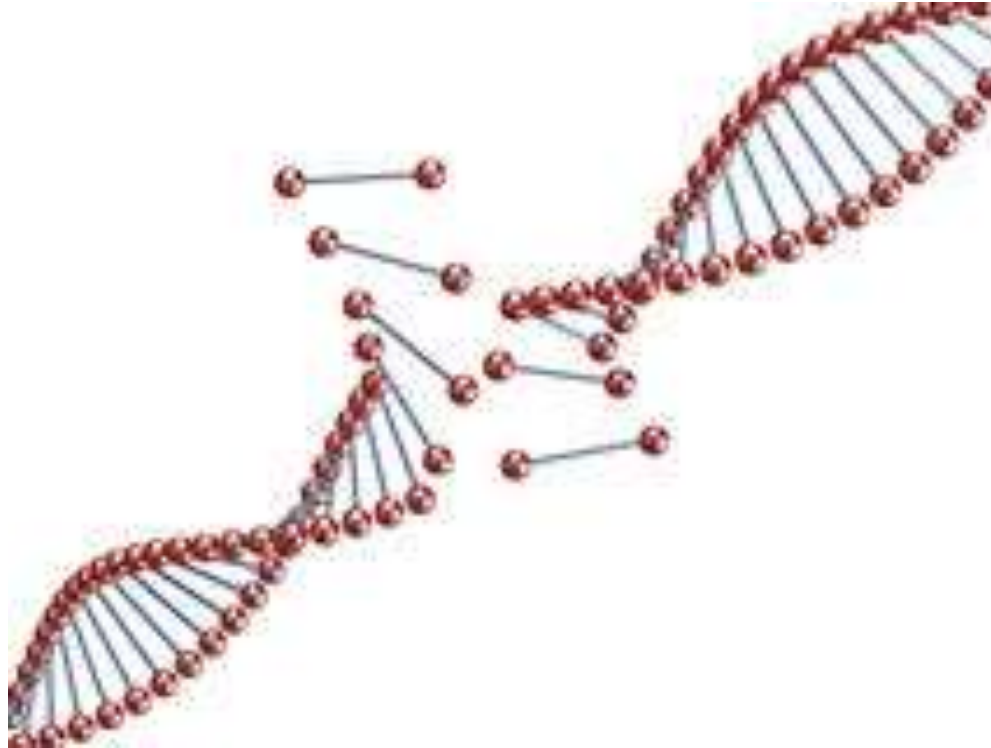
Fears that home energy data could stigmatize low performing buildings?

Will a home energy score disproportionately affect low-income homeowners?

Discussion



Break





Northeast Energy Efficiency Partnerships

Technical Track: The Data Must Flow, but how?

HELIX Summit

Nov. 10, 2016



Vermont
Energy Investment
Corporation

HELIX Summit

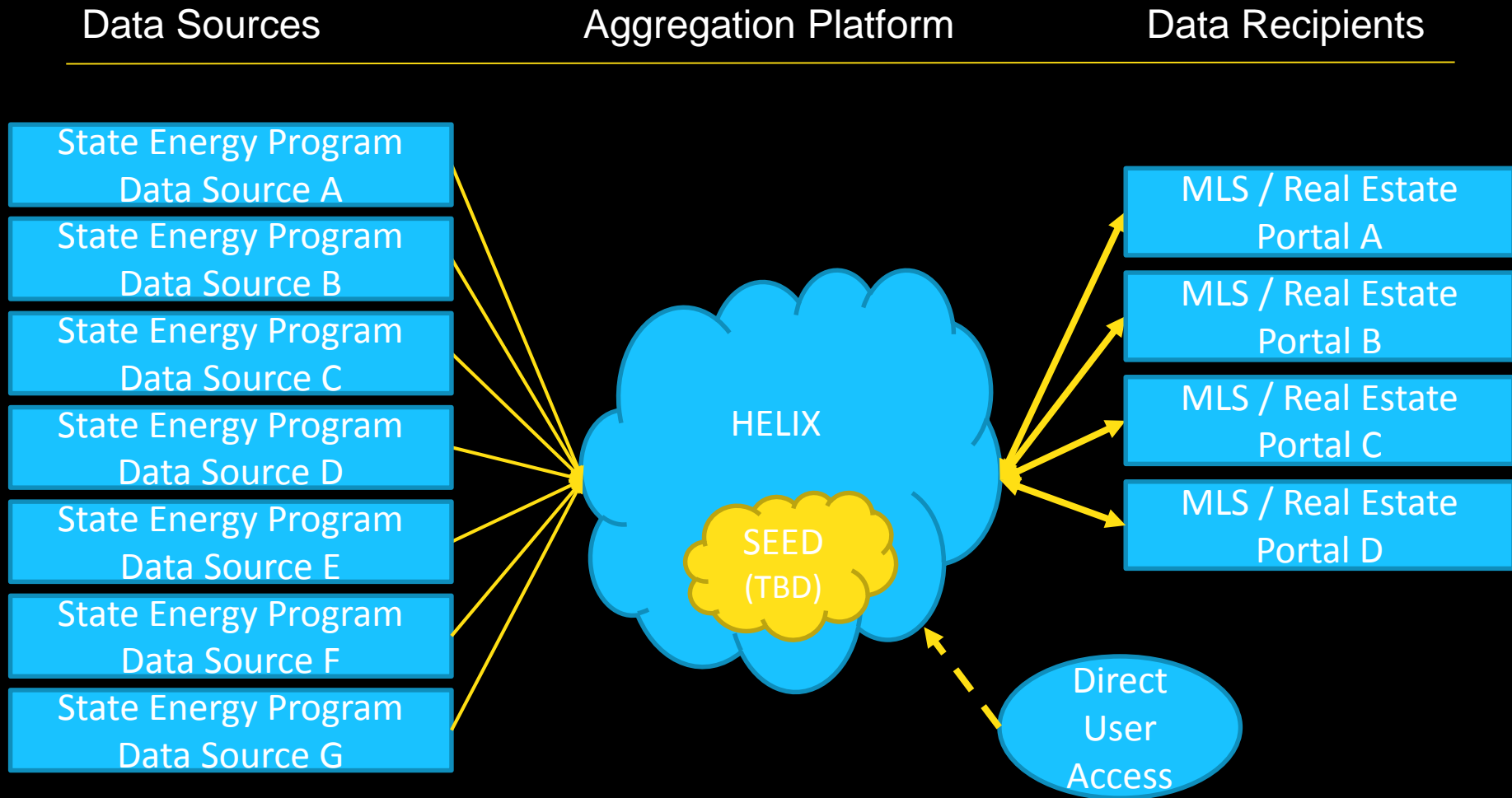
Technical Track: The Data Must Flow, but how?

November 10, 2016

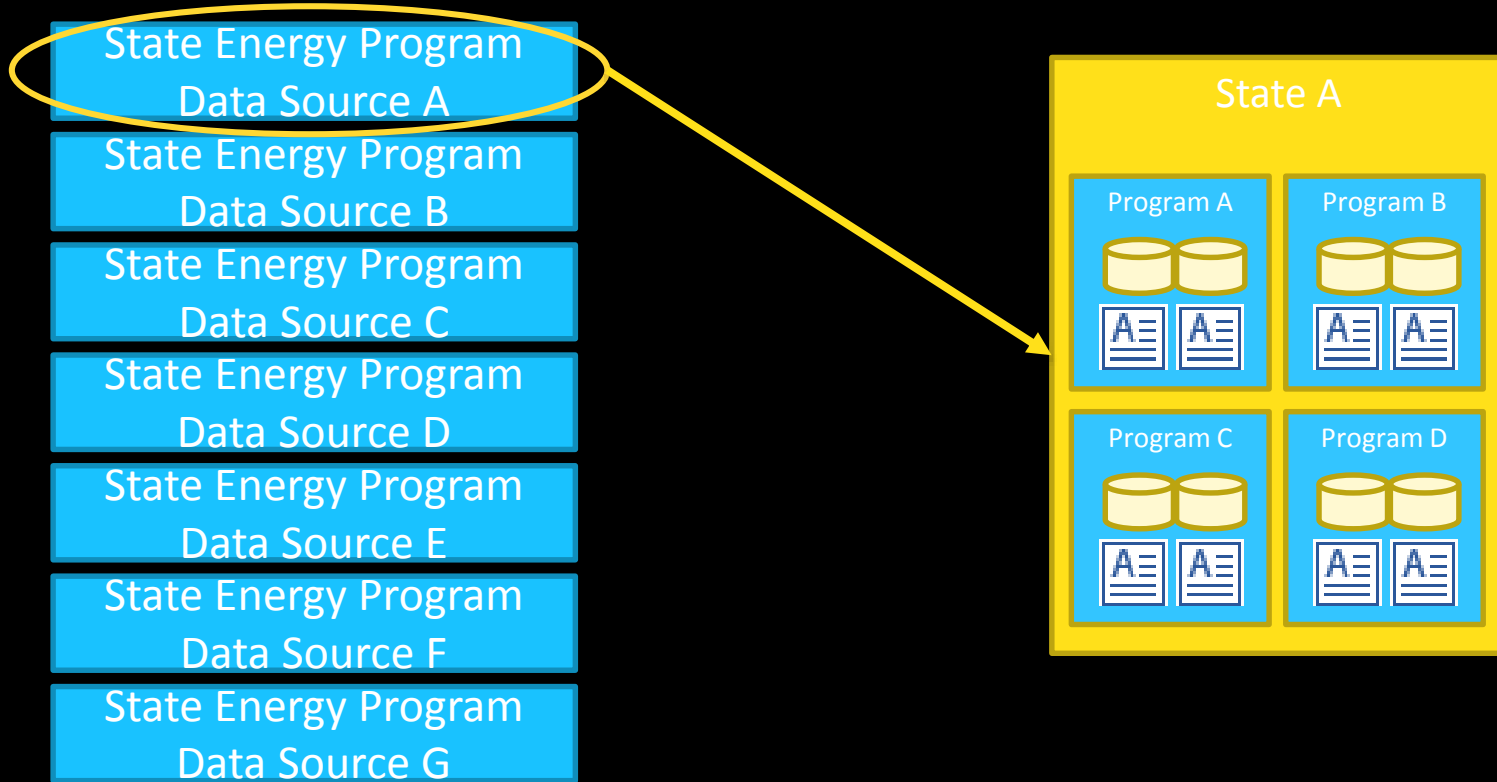
Leslie Badger,

Vermont
Energy Investment
Corporation

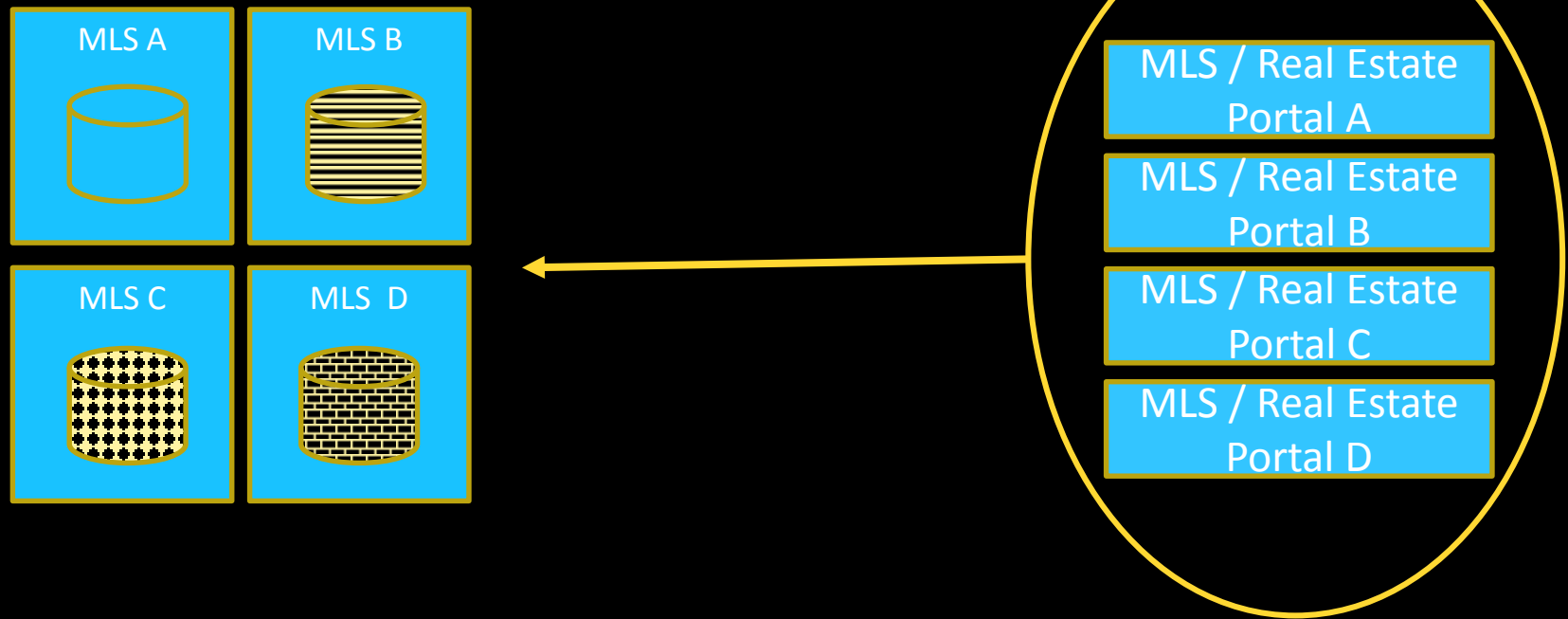
The Challenge



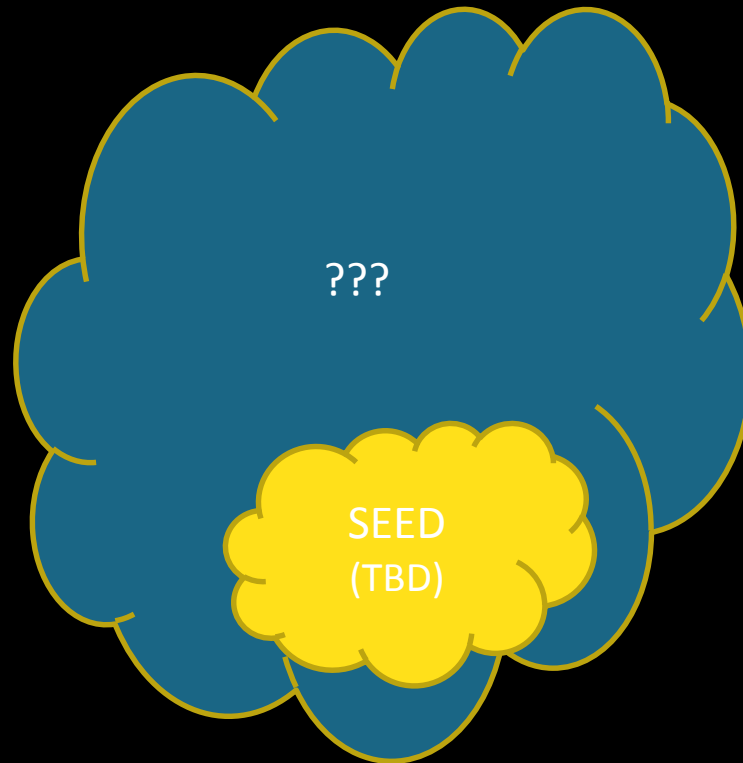
The Challenge, cont'd...



The Challenge, cont'd....



The Challenge, cont'd...



HELIX Survey

- Survey of HELIX states to better understand data sources
- Focus on RESO Data Dictionary structure
- Silver Certification Green Fields (implementation Jan 1, 2018)
 1. Third-Party Verification Fields
 2. Marketing/Green Search Field
 3. Specific Technical Fields (documentation uploads)*
- Feedback from six HELIX states
- All states had some level of data corresponding to RESO Silver fields

HELIX Survey – Third Party Verified

- Program specific enumerations
 1. Green Verification Program
 2. Green Verification Body
 3. Green Verification Rating
 4. Green Verification Metric

Source	Documentation
Green MLS Implementation Guide	HERS Index
	Home Energy Score
HELIX Additions	Annual Total MMBtu Usage (all fuels - site basis)
	Annual kWh usage (modeled in HERS or Home Energy Score)
	Annual kWh generated (onsite Solar PV)
	Annual fuel usage (modeled in HERS or Home Energy Score, fuel specific units)

HELIX Survey – Specific/Technical Fields

Source	Documentation
Green MLS Implementation Guide	Standard DOE Home Energy Score Report
	Semi-Custom DOE Home Energy Score Report
	HERC (Home Energy Rating Certification)
	Appraisal Institute Green & Energy Efficiency Addendum
	MLS Green Addendum*
	Combustion Safety Test on file
	Blower Door test results on file
	12-Month Utility History
	NFRC Window Rating
	ENERGY STAR/ACCA Quality Installation
	HERS Insulation Grading
HELIX Additions	Energy Audit Report (HPwES)
	Code Compliance Report
	Vermont Home Energy Profile
	Cold Climate Air Source Heat Pump
	Biomass oiler or Furnace
	Solar Thermal

RESO Data Dictionary

- Third Party Verified Fields
 1. Nine fields implemented as a group
 2. Four fields with specific enumerations
 3. Part of RESO Silver Certification
- Green Marketing/Search Fields
 1. Six fields implemented as a group with specific enumerations
 2. Non-verified data
 3. Part of RESO Silver Certification
- Specific/Technical Fields
 1. Documentation Fields only
 2. Not part of RESO Silver Certification

Example MLS Implementation MRIS

Third Party Verified Fields

MRIS Real Estate in RealTime™

14305 CHESTERFIELD RD, ROCKVILLE, MD 20853

Find a Field

Green Verification: Yes No

Add Green Verification Programs:

ENERGY STAR Certified Homes x HERS x
Home Performance w/ ENERGY STAR x

	* Body:	Rating:	* Status:	Year:	Score:
x ENERGY STAR Certified Homes	EPA				
x HERS	RESNET				
x Home Energy Score	DOE				
x Home Performance w/ ENERGY STAR	DOE				
x Indoor airPLUS	EPA				
x LEED for Homes	USGBC				
x NGBS New Construction	Home Innovation				
x NGBS Small Projects Remodel	Home Innovation	Certified			
x NGBS Whole-Home Remodel	Home Innovation				
x WaterSense	EPA				

Example MLS Implementation MRIS

Green Search/ Marketing Fields

MRIS Real Estate in Real Time™

14305 CHESTERFIELD RD, ROCKVILLE, MD 20853

Find a Field

Print Listing Autosaved: 6:15PM

GENERAL

General

BUILDING

Features

Floor Plan

Measurements

Other Structures

Rooms

Unit

Utilities

FINANCIAL

Fee

Investment

Mortgage

LISTING

Contract Info

Photo Options

Promotions

Remarks

Rental Transaction

LOT

Description

Parking

PARTICIPANTS

Agent

Owner

Property Management

Showing Contacts

PROPERTY

Address

Community

Farm

Location

Tax Info

Water

* Cooling Fuel: Electric

* Cooling System: Programmable Thermostat, Heat Pump(s), Ceiling Fan(s), Central Air Conditioning

* Heating Fuel: Geo-thermal, Natural Gas Available

* Heating System: 90% Forced Air

* Sewer/Septic: Applied for Permit, Lateral/Tap On-Site, Low Pressure Pipe (LPP)

* Water: Public, Tap Fee

* Hot Water: 60 or More Gallon Tank, Electric, None, Natural Gas, Oil, Multi-tank

Energy Efficiency: Electrical / Lighting, Construction / Materials, Home Energy Management

Indoor Air Quality: Contaminant Control, Integrated Pest Management

Water Conservation: Water-Smart Landscaping, Water Recycling

Energy Generation: Grid-Tied

Grid-Tied

Net-Meter Renew Energy Credits

Off-Grid

Pre-wired for PV Solar

Pre-wired for Wind Turbine(s)

PV Solar Array(s) Leased

PV Solar Array(s) Owned

Wind Turbine(s) Leased

Wind Turbine(s) Owned

FINANCIAL: Fee

PSA Fee: 25.00

Other Fees:

Special Assessment 1:

Special Assessment 2:

Front Foot Fee:

Electric Last 12 Months:

Electric Average Monthly:

Other Fee Payment Frequency: Monthly

Term 1:

Term 2:

Example MLS Implementation IRES

Green Field Search

The screenshot displays the search interface for ColoProperty.com, powered by IRES. The page is titled "Search Homes for Sale" and is set for "Fort Collins". The search criteria include "Homes for Sale" and "Any Price". The interface is divided into three main sections: "Details", "Area", and "Features".

Details: Includes filters for Beds, Baths, SqFt (to SqFt), Year Built (to Year Built), Acres (to Acres), Any Car, Garage, Any Style, and Max HOA Fee (per year). There is also a "Hide Backup Offer Listings" option.

Area: Includes filters for Subdivision, Elementary School, Middle School, High School, and Walk Score®.

Features: Includes filters for General Features, Design Features, Common Amenities, Accessibility, and Green Features. The Green Features section is highlighted with a red circle and contains the following options:

- Check all
- Uncheck all
- Any (at least one)
- ENERGY STAR
- Green Disclosure (Energy)
- HERS Rated
- High Efficiency Furnace
- LEED for Homes Certified
- NAHB/IBS - ICC 700 Certified
- Solar Domestic Hot Water
- Solar Hot Water Heating
- Solar Photovoltaic System
- Solar Thermal System

Discussion

- What Specific/Technical Fields
 1. Diagnostic testing (e.g. Blower door)
 2. Estimated annual energy costs
 3. Estimated annual energy use
 4. Local reference values
- Do these fields need to be Specific/Technical or can they fall under Third Party Verified?
 1. e.g. Local Program associated metrics

HELIX

Technical Options

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Restating the Goal

1. Build an application [HELIX] to help stakeholders in New England bring together disparate data about residential home energy performance into a common database.
2. Make aggregated data available to stakeholders through a machine-readable interface [API, etc.].

Constraints

1. Build budget
2. Operations & maintenance budget
3. Governance framework

Assumptions?

- Build on top of SEED
- Other options will cost more
- HELIX responsible for data transactions

Methodology & Options

- Analyze several options
 - Through interviews, conversations, etc.
 - Pros, Cons, Estimated Costs
- Invest in SEED
- Build around SEED
- Build through SEED
- Custom build

Option 1: Invest in SEED

- Pros: previous expertise, partner with government and industry
- Cons: coordination risks, speed
- Costs: \$\$\$

Option 2: Build around SEED

- Pros: less dependent on SEED, focus on APIs, build on wider expertise in home energy
- Cons: unproven solution
- Costs: \$\$\$

Option 3: Build through SEED

- Pros: lean/agile approach, built on previous expertise,
- Cons: lack of expertise, execution risk, cost uncertainty
- Costs: \$\$\$

Option 4: Build custom

- Pros: low-cost, builds in a buffer
- Cons: cultural barrier in translating requirements, lack of context
- Costs: \$

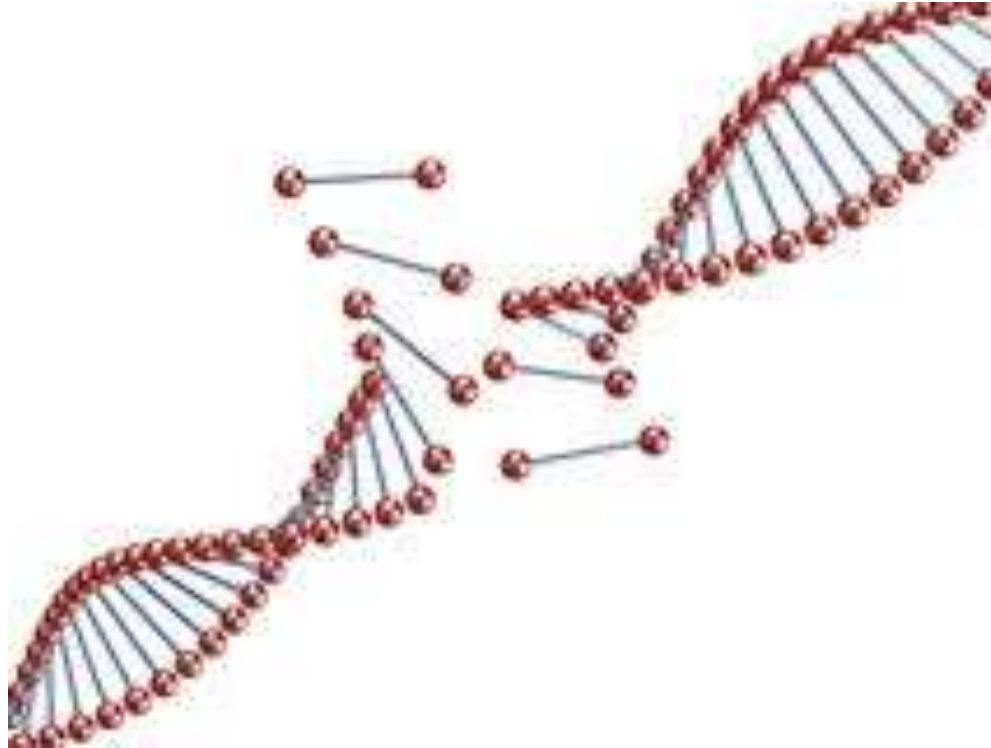
Conclusion

- Learn more
- Question assumptions
- Wait and see

Discussion



Break





Northeast Energy Efficiency Partnerships

**Governance and Privacy:
"Who Owns the Data?,"
"How to determine who can access
what data when?,"
and other open questions**

NEEP-HELIX Summit

Privacy and Governance

Vermont Law School

Institute for Energy and the Environment

November 10, 2016

Task 4.1 Privacy

- ▶ Identify different home energy scores, labels, and ratings that may be included in the HELIX database
 - ▶ Home Energy Score (HES)
 - ▶ Home Energy Rating System (HERS)
 - ▶ ENERGY STAR Certified Homes
 - ▶ LEED for Homes
 - ▶ Passive House
 - ▶ *NGBS, others also under consideration*

Types of Home Ratings

Asset Ratings

- ▶ Rating the building ‘as built’
- ▶ Grading the building and not the people
- ▶ Grading the building's theoretical energy consumption
- ▶ Buildings “DNA”
- ▶ E.g :HES, HERS, Energy Star Certified Homes, LEED for Homes, Passive House
- ▶ Privacy concerns: LOW

Operational Ratings

- ▶ Rating the building “as used”
- ▶ Grading the building’s real performance, using metered energy use data
- ▶ Grading the building's actual energy consumption
- ▶ Report Card/Grade
- ▶ E.g: ENERGY STAR Portfolio Manager
- ▶ Privacy concerns: HIGH

Home Energy Ratings, Labels and Scores

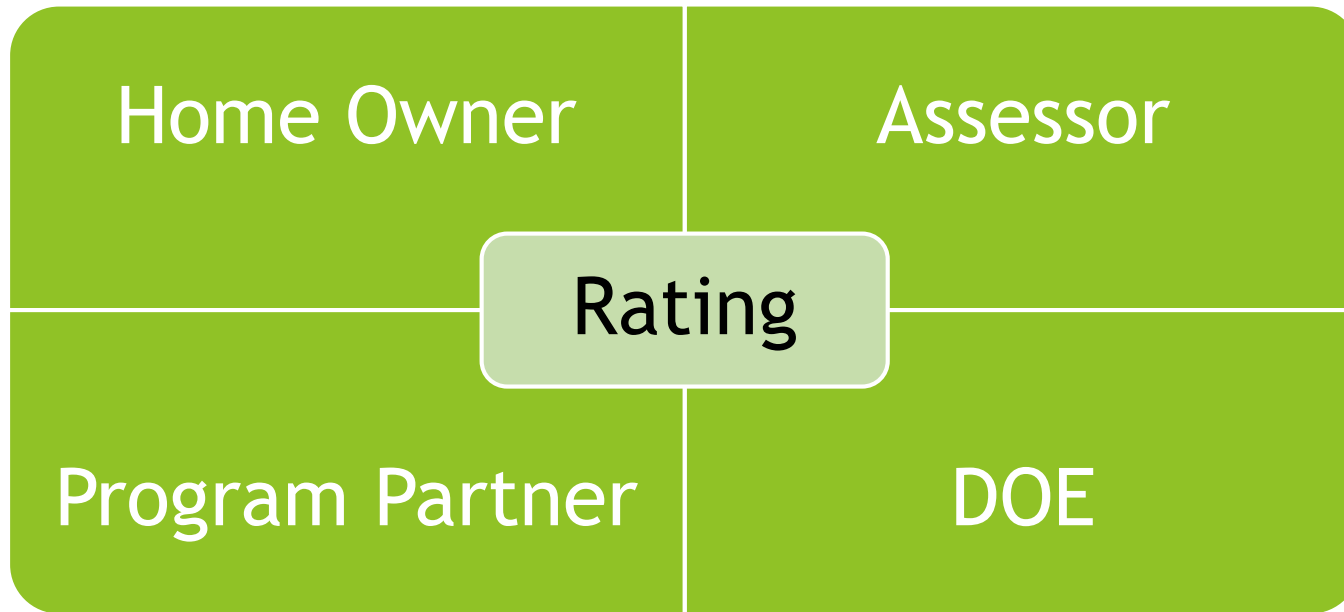
- ▶ HES, HERS, ENERGY STAR Certified Homes, LEED for Homes, Passive House are ASSET RATINGS
- ▶ Gather standardized energy usage data that is not dependent on the customer behavior
- ▶ Data Gathered:
 - building's envelope energy systems, square footage and energy systems
 - information about the house itself and the occupant/s such as: location (address, city, state, zip), year built, name of the occupant/s

Governing Rules

- ▶ The contracts concluded between the Parties
- ▶ The Parties must abide and/or guide their action by:
 - the contractual obligations stipulated in the Contracts
 - mandatory standards or specific non-binding standards or guidelines

PROVIDED THAT THESE are not in violation of the applicable law; if they are in violation, state law shall govern

Relationship Between Four Parties Home Energy Score



Parties Involved

- ▶ HES: DOE at the federal level, the Partners at the state level and the Assessors that are directly linked with the Customers
- HERS: RESNET at the national level, the Providers at the state level and the Home Energy Raters that perform the assessment for the Customers
- Energy Star Certified Homes: the federal government and public sector organizations, such as the EPA, state and local Partners (i.e. builders, raters and other sponsoring organizations), Home Energy Raters, and Customers

Contractual Obligations

- ▶ DOE Home Energy Score (HES)
 - DOE concludes Partnership Agreement with the Partner
 - Partner submits Partnership Implementation Plan to DOE
 - Partners have in place Code of Ethics and/or Standards of Practice and/or Client Bill of Rights and/or Rating Program policies and Procedures
 - Assessors have to respect the Code of Ethics and/or Standards of practice and/or Client Bill of Rights and/or Rating Program policies and Procedures
 - Assessors offer the HES to the Customers
 - Assessors conclude Home Inspection Agreement with Customers

Federal and State Laws

- ▶ Rating/label/score laws
 - lack of federal guidance
 - no consistency at the state level regarding what is currently being offered by each state and how they are offered to consumers
- ▶ Residential Disclosure Laws
 - widely used for commercial and multifamily buildings
 - not as common for residential single-family buildings

Federal and State Laws

► Privacy Laws

- No laws dealing particularly with privacy and consent issues related to rating/label/score systems
- Laws of general applicability: release of information, the right to privacy, the use of public records, freedom of information acts, management of energy and/or environmental data

Key Takeaways

- Laws and regulations are more protective of data that includes actual energy use data
- State privacy laws and the right to privacy of each citizen are centered around the identification of personally identifiable information/personal privacy: the name and address of a citizen do not qualify unless combined with information such as SSN, driver's license no, etc.
 - Potential privacy concerns: customer name and address

Key Takeaways

- ▶ Contractual relationships govern unless they violate state laws

Next Steps

- ▶ Verify existence of data sharing clauses in third-party data access agreements
- ▶ Obtaining customer consent
 - ▶ Past and future customers

Task 4.2 Business Models

- ▶ Ownership
- ▶ Governance
- ▶ Management
- ▶ Hosting
- ▶ Copyright

Ownership and Governance

- ▶ For-Profit Corporation vs Non-Profit Organization
 - ▶ For-Profit Corporation
 - ▶ Corporation
 - ▶ LLC
 - ▶ Public Private Partnership
 - ▶ B Corp

For-Profit Governance

- ▶ Ownership and Governance Issues in Forming a Corporation
 - ▶ Incorporation Location
 - ▶ Stakeholders into Shareholders
 - ▶ Who are the owners?
 - ▶ Corporations provide shares and rights to their shareholders
 - ▶ Vote
 - ▶ Dividends
 - ▶ Proceeds of dissolution
 - ▶ Right to transfer shares
 - ▶ Right to inspect corporate records

Ownership and Governance

- ▶ Non-Profit Organizations
 - ▶ 501(c)(3) - Charitable Organizations
 - ▶ 501(c)(4) - Social Welfare Organizations
 - ▶ 501(c)(6) - Business League

501(c)(6) Business League

- ▶ Common Business Interest
- ▶ Membership Support
- ▶ Business Structure and Inurement
- ▶ Improvement of Business Conditions
- ▶ Not Engaging in Regular Business of a Kind Ordinarily Carried on for Profit
- ▶ Case-by-Case Analysis

Governance

- ▶ Multi-state non-profit organizations
 - ▶ Regional representation - RGGI
 - ▶ No requirement for regional representation - ISO-NE
- ▶ Conflict of Interest
 - ▶ State laws for public officials
- ▶ Membership rights
 - ▶ Voting or non-voting

Management

- ▶ Risk Management
 - ▶ Internal and External Threats
 - ▶ Internal Threats - Controlling access of authorized users
 - ▶ Database structure
 - ▶ Isolated data sets, restricted access, and access logs
 - ▶ Contractual arrangements for database users and third-party vendors
 - ▶ Apportioning liability
 - ▶ External Threats - Protecting from outside intrusion
 - ▶ Best Management Practices
 - ▶ Cyber Liability Insurance

Database Hosting

- ▶ Security Breach Notification Laws
 - ▶ Exist in each HELIX state
 - ▶ Similar construction
 - ▶ Focus on private or personal information
 - ▶ Impose notification requirements on organizations managing personal or private data
 - ▶ Integrate notification protocols into management practices

Intellectual Property

- ▶ Three types of intellectual property
 - ▶ Copyright
 - ▶ Trademark
 - ▶ Patent

Copyright

- ▶ Copyright
- ▶ Database copyright
- ▶ Copyright licensing

Next Steps

- ▶ Select business model
- ▶ Define stakeholder participation in governance
 - ▶ Rules for board of directors
 - ▶ Rules for management team
- ▶ Develop strong contractual relationships
 - ▶ Data access

Privacy Questions

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- Will we need to obtain a signed data release from every customer in order to post energy data in HELIX/MLS, or can we envision a way forward without this step?
- Are there distinctions between “asset” and “operational” data that could determine what data is made public and what isn’t?
- Are there instances we might envision where we wouldn’t need to obtain customer consent for data sharing?
- Do we need a single regional (or national) policy on data sharing, or might a state-by-state approach be preferable?

Draft Data Release

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- Based on Efficiency Vermont’s “Home Energy Rating Information Release”, but modified for wider use
- The enrollee hereby authorizes _____ to release the following energy asset information for the purpose of assisting real estate appraisers and realtors in the development of accurate home appraisals: the physical address of the rated property; the score/rating; whether the home has received an energy performance certification (e.g., labeled as ENERGY STAR®, LEED for Homes, National Green Building Standard, Passive House, etc.); and the date that the criteria was met.
- Requests by enrollees to withhold such release will be honored, providing such notification is received prior to completion of energy documentation. For all enrolled properties, energy asset information and associated project documentation will be available to subsequent owners of the property upon request.
- Include any other additional data fields?
 - Estimated annual energy use and cost
 - All data fields noted in RESO Data Dictionary

Governance Questions

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- ❑ Does a 501(c)(6) make the most sense as HELIX ownership structure?
- ❑ How should we set up HELIX governance to avoid potential conflicts of interest?
- ❑ What should a board of directors and advisory council look like?
- ❑ What type of organization should manage HELIX?
- ❑ Where should HELIX be incorporated?
- ❑ How do we ensure data protection, risk management, intellectual property protection and licensing?



GREEN REAL ESTATE RESOURCES



In the modern real estate marketplace, buyers and renters can sort and filter listings of potential buildings for myriad characteristics. However, energy efficiency and other energy features are rarely among these. [The value of energy efficiency in homes, offices, and other buildings](#) has historically not been effectively communicated between the property owner, real estate broker, appraiser, lender, and buyer due in large part to a lack of consistent tools to facilitate this exchange. In recent years, though, considerable advances have been made to streamline this process, enable accurate valuation of building energy efficiency in real estate transactions, and make energy efficiency visible.

Green Real Estate Resources:

NEEP supports this "greening" of the real estate market by providing resources for on-the-ground real estate professionals tailored to the needs of the Northeast and Mid-Atlantic residential and commercial real estate markets.

[Real Estate Professionals Checklist](#)

[Renter's Guide: Creating Lower Cost, Energy Efficient Apartments and Homes](#)

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THANK YOU!

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and the rest of the HELIX Team

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