Welcome
HELIX Welcome and Overview

Carolyn Sarno Goldthwaite, NEEP

Samantha Caputo, NEEP
About NEEP
A Regional Energy Efficiency Organization

One of six REEOs funded in part by U.S. DOE to support state and local efficiency policies and programs.
Northeast Energy Efficiency Partnerships

• Long-term shared goal
  – To assist the Northeast and Mid-Atlantic region in reducing carbon emissions 80% by 2050 (relative to 2001)

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

• Vision
  – That the region embraces next generation energy efficiency as a core strategy to meet energy needs in a carbon-constrained world

• Approach
  – Overcome barriers and transform markets through Collaboration, Education, and Enterprise
Home Energy Labeling Information eXchange

Goal: Connect Home Energy Investments to Property Values
Components of the HELIX Project

- Technical Design & Development
- Governance, Ownership, & Privacy
- Stakeholder Engagement
- Real Estate Outreach & Education
Where are we now?

Year 1: Research and Scoping

Year 2: Development and Testing

Year 3: Full Implementation

Today

Nov-Feb Beta Testing
HELIX Demo

Understanding how home energy information is imported and exported

Veronique, ClearlyEnergy
About ClearlyEnergy

Incorporating energy and utility information in the real-estate process

Listing / Portal / Map
ClearlyEnergy provides real-estate and other portals with easy access to the home’s estimated energy footprint.

Energy & Comfort Report
ClearlyEnergy’s API breaks down costs and shows existing ratings for the home. Homeowners can improve the assumptions.

Homebuyers are increasingly asking about energy costs and solar benefits as part of the home purchasing process. For 38% of buyers, the home’s energy efficiency is an “extremely” or “very” important decision factor.*

Savings & Incentives
Platform is designed to incentivize the homeowner to take action!

*MIT, Redfin, ClearlyEnergy survey
HELIX Architecture
Expands SEED

- Organized by State with sub-organizations
- Add Residential Fields:
  - HES, HERS
  - Measurement
- Building List:
  - View/edit/search by characteristics
  - View history
  - Adapt displays for States & MLS’
- Organizations & Users:
  - Organized by State with sub-organizations
- Apply User Permissions:
  - HES API
  - API create
- CSV/XLS/XML
- Data Storage
- CSV/XML
  - Include certification
- API
  - Bulk select
  - Select by date
  - RESO format
- Export
  - Match & merge
- Import
- Apply User Permissions
  - CSV/XLS/XML
- Data Display
- Data Display
Questions?
U.S. Department of Energy
The Latest with Home Energy Score and National Home Energy Labeling Efforts

Joan Glickman
U.S. Department of Energy
Scoring & Accelerator Updates
What’s New?

• Home Energy Score

• Home Energy Information Accelerator

• In the Works
Home Energy Score Updates

- 75,000+ Homes scored
- 500+ Assessors nationwide
- “Find An Assessor” Tool - Now live on web site
- Remote Quality Assurance & Mentoring Now Underway
- FHA Homebuyer Counseling - Webinar for training orgs on November 28th!
- Outreach to REALTORs (e.g., education modules)
Social Media Campaigns... Getting the Word Out

Winter is coming. Are you ready?

U.S. DEPARTMENT OF ENERGY
Home Energy Score

Know your home. Know your Score.
### Home Energy Information Accelerator (HEIA): Successes to Date

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<th>Partner</th>
<th>Leadership In Action</th>
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| Council of Multiple Listing with Real Estate Standards Organization & National of REALTORS | Authored the "Home Energy Information Guide: Taking Verified Data Through the MLS to the Consumer"
  - Guide intended to help real estate professionals and multiple listing services use the latest RESO data information.
  - The guide clarifies what constitutes “verified” information as well as how different types of information communicated to clients. |
| Real Estate Standards (RESO) | Accelerated timeline for MLSs to adopt standard fields for home energy information from 2020 to 2018 fields. |
| Home Performance | Launched “HPXML website”
  - Explains the how’s and why’s for using HPXML, a data specification developed and used by the home
  - Includes a comprehensive section that focuses on the real estate transaction and the importance of |
| Appraisal Institute | Updated the “Residential Green and Energy Efficient Addendum”
  - Allows appraisers to more consistently document and value home energy information.
  - Corresponds to the latest Real Estate Standards Organization’s fields for verified energy information. |
| California Regional MLS Build It Green U.S. Green Building Council | Implemented extensive training and enhanced data sharing with real estate professionals
  - Began development of green building data registry and more effective collaboration among key groups.
  - Trained more than 400 REALTORS and 60 appraisers on home energy features and valuation. |
Clarifies Three Major Categories of Green Verifications

1. Green Certifications
   - The home achieves standards of energy and/or green features
   - Popular programs can vary by market

2. Energy Labels
   - Applicable to any home
   - Compares home to an accepted standard

3. Verified Energy Improvements
   - Proof of investment in upgrades
   - Clarifies differences with “comparable” homes
## FY18 HEIA Partner Commitment Highlights

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<th>Partner</th>
<th>Commitment</th>
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| Appraisal Institute                         | • Map use of Green Addendum  
                                            • Update green courses                                                   |
| National Association of State Officials     | • Create State Policy Toolkit                                               |
| Real Estate Standards                       | • Report on the 100 largest MLS’ implementation of green fields             |
| Oregon                                      | • Continue development and coordination for data auto-population            |
| Northeast                                   | • Beta test HELIX with an MLS  
                                            • Pilot study of data flow with several states  
                                            • Add PV data in addition to efficiency information                       |
| Chicago                                     | • Report on new research regarding 2016/17 field usage of energy bill info  |
| California                                  | • Pilot Green Building Registry                                             |
Partners Cite Need for Additional Work on…

• Data access & privacy
• Greater uptake by national partners
  • e.g., RESO, CMLS, NAR, Appraisal Institute
• Information campaigns
• Integration with financing
Ongoing Issues

Home Energy Information Pipeline

Reliable Home Energy Data → Standardized Home Energy Data → Access to Home Energy Data → Use of Data in Home Listings → Consumer Awareness

Ongoing Issue:
- Automated Energy Models (AEMs)
- Privacy and data access issues
- Market confusion
- Limited access to financing
In the Works

- Automated Energy Models
  - Is there a way to turn these into a positive?
  - RMI analysis, using Home Energy Score data
  - Potential for improved remote asset assessments

- Opportunities to reduce confusion and grow pipeline
  - Common metric with ENERGY PLUS
    - Estimated BTUs, cost
    - HERS, Home Energy Score, GSEs, LEED, others?
  - DOE’s WX program
    - Plans to create new “NEAT” – could easily generate Score

- Integration with financing
  - Value EE at point of sale AND/OR finance upgrades as part of mortgage
  - Fannie Mae pilots with DOE and others
Questions?
HELIX Ownership and Governance

Richard Faesy, Energy Futures Group
Three-Phase Approach

Phase 1: HELIX Project
- 2017-2018 NEEP will retain ownership rights and oversight while HELIX is a project of NEEP
- Under DOE grant contract

Phase 2: HELIX Subsidiary
- As HELIX becomes more independent and the future development is clearer HELIX is set up as a wholly-owned subsidiary of NEEP
- Ultimate structure post-NEEP determined before spinning off.
- Ensure HELIX is self-sufficient and financially viable before spun off.

Phase 3: HELIX Independence
- Timing & structure determined by NEEP Subsidiary Board of Directors, then approved by NEEP Board of Directors.
- Premature to determine timing and ultimate structure at this point
Governance Structure

Figure 1. Project Governance Structure

Figure 2. Subsidiary Governance Structure
HELIX Operational Plan

• Understanding Value w/Revenue Models
  • Maintaining non-profit status allows for receiving grants and general support
  • Explore charging for support, membership, and use
  • Need to create customer value and market the benefit of understanding a home’s energy performance

• Members
  • HELIX Providers
  • HELIX Users
  • HELIX Supporters

• Populating the database
  • Data consent and privacy provisions will need to be maintained for each state
Questions for HELIX

• How can we best determine the value of HELIX in the real estate marketplace and by jurisdictions with an interest in promoting energy information?
  • What might they be willing to pay for this data?

• What is the interest that data aggregators have in HELIX?
  • Data access - Partnership
  • Financial - Ownership

• How does HELIX relate to other energy auto-pop efforts currently under development (e.g., Pivotal in NC, LBNL’s PV Auto-Pop, California’s efforts, etc.)?
HELIX Database Access Protocols

Mark James, Vermont Law School
HELIX Testing
Database Access Protocols

• Develop Operational Policies to Maintain, Populate and Quality Control the HELIX Database
• Set rules and guidelines that will govern how HELIX manages data flows and access
• Beta testing
  • Making HELIX accessible to individuals and organizations outside of the project team
  • Facilitating access while maintaining privacy
HELIX Testing
Database Access Protocols

HELIX Data Access Structure

HELIX Partners
Approves Owners
And Organizations

Administrator
Creates Owners and Organizations, Sets
Permissions fields for Organizations

OWNER

State Organization

Sub-Organization A
State Organization

Viewer/Member Viewer/Member Viewer/Member

Sub-Organization B
Multiple Listing Service

Viewer Viewer Viewer
HELIX Testing
Database Access Protocols

• State Organizations and Multiple Listing Services
  • Supervising MLS access to data
    • State Organizations will have different management options
      • Full Control
      • Operational Sign Off
      • Minimal Supervision
Questions?
BREAK for 10 Minutes
Real Estate Outreach and Education:
This “green stuff” so complicated- is help on the way?

Jeff Gephart, Vermontwise Energy Services
Education for Real Estate Professionals

Jeffrey Gephart
for: Efficiency Vermont

Virtual Summit
November 15, 2017
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

Market Transformation Strategy
Visible Value Blueprint

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, more accurate, **automated transfer of data**.

7. Work with partner **financial institutions** to ensure selection of **qualified appraisers**.
Education for Real Estate Professionals

Educational support for real estate professionals is needed because:

• The benefits of energy efficiency and sustainability are of increasing importance to home owners and home buyers.

• New and existing homes built or renovated following building science principles perform differently than the homes we’re accustomed to and documentation by accredited, independent 3rd parties is increasing.

• Without knowledge of construction methods and benefits of a high performance home, real estate market professionals: appraisers, lenders, multiple listing systems, and Realtors®, are at increased liability risk when unaware of such major improvements in housing performance.
HELIX Message for Real Estate Pros

There is a lot going on in the green real estate space. Solar panels, energy scores for homes, and green home certifications make the lives of real estate professionals significantly more difficult. Can’t anyone think of an easy solution? There is a solution. It’s called HELIX.

What’s HELIX? HELIX is a place where all of this data is housed. Imagine a day when you enter an address into your MLS and ALL your listing’s green features auto-populate into the MLS.

Credit: Craig Foley, Sustainable Real Estate Consulting Services
HELIX Message for Real Estate Pros

**HELIX** is a solution because:

- Data provided is verified by accredited, independent, 3rd parties
- Accurate input into MLS assured with auto-population
- Accurate data reduces liability for real estate professionals and MLS
- Enables real estate professionals to document energy efficiency and green building certifications in for-sale listings
- Improves ability to locate homes with energy efficiency and green building features to purchase, sell, and/or compare to
We’re not going to turn real estate professionals into building scientists but...

Building science?
...but we can help them use the tools available: 3rd party verified documentation.

1. **Document** energy efficiency features and improvements using consistent, standardized methods.
2. **Disclose inventories** of energy efficient homes to track supply.

What does the Northeast’s green home inventory look like?

- 2016 new construction with HERS Index Scores
- MA leads the nation with 61% of new homes built in 2016 receiving HERS Scores
Disclosing Inventory via Commission Value

Existing Homes with Comprehensive Energy Audits & Weatherization Work Performed

Commission potential by county:
6% of median home price*

\[ \times \]

# of weatherized homes

*median non-vacation home price Jan-June 2017 – Source:

Real Estate Market Education
Seeking Regional Allies

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

Trade associations use education, particularly continuing education (license required), to increase the professionalism of their members and to raise critical, non-dues operating revenue.
Real Estate Market Education
Seeking Regional Allies

Efficiency and building certification programs that can provide state-approved, continuing education courses and instructors should be able to collaborate with the local chapters of the following trade associations to provide education about building efficiency and renewable energy:

- Appraisal Institute
- Association of Credit Unions
- Council of Multiple Listing Services
- Mortgage Bankers Association
- National Association of REALTORS®
- State Housing Finance Agencies

Others?
Who among you are or know the allies and contacts for HELIX for educational collaboration in your state?
Let's start getting CE credits approved and scheduling training!
Article 11
REALTORS® shall not undertake to provide specialized professional services concerning a type of property or service that is outside their field of competence unless they engage the assistance of one who is competent on such types of property or service, or unless the facts are fully disclosed to the client. Any persons engaged to provide such assistance shall be so identified to the client and their contribution to the assignment should be set forth.
Article 11
Standard of Practice 11-1
When REALTORS® prepare opinions of real property value or price they must:
1. be knowledgeable about the type of property being valued,
2. have access to the information and resources necessary to formulate an accurate opinion, and
...unless lack of any of these is disclosed to the party requesting the opinion in advance.
How do Realtors® stay relevant when evermore connected homes can track & disclose energy use?

Alexa, sell my home.
Real Estate Market Educational Activities

Multiple education strategies (light touch through deep dive) proposed:

• News articles and email blasts promoting education through real estate related associations
• Exhibits at conferences held by real estate related associations
• Short presentations at association meetings or for businesses - 15 to 30 minutes that promote HELIX and deeper educational offerings
• Continuing education credit approved courses (2 to 8 credits)
  • A 2-hour HELIX CE credit course will soon be available for state approval
• Day-long symposiums – *like the Vermont or New Hampshire Green Real Estate Symposiums*
• Designation training (deeper dives - usually more than 1 day)
National Association of Realtors® rolled out their Green Designation in 2008. Out of 1.2 million Realtors® (NAR members), among the 2 million active licensed real estate agents in the U.S., ~50,000 (4%) currently have earned the NAR Green Designation.

Amanda Stinton, Director of Sustainability, National Association of Realtors®
Green Realtor® rock star *(that’s how they talk)*
Craig Foley, Sustainable Real Estate Consulting Services.
Craig is an NAR Green Designee and course instructor.

NAR Green Designation Training
Jan. 17-18, 2018, Manchester, VT

TEDxSomerville - March 30, 2014
4. Work with the **MLS** community to ensure that data about home **energy efficiency improvements** are incorporated into **for-sale listings**.

MLS staff provide training on the database and use of the green fields.

Program sponsors and MLS might develop more training opportunities utilizing MLS communications tools.

- Pop-up guides when hovering over green fields
- Webinars appended to MLS
- Other ideas/needs?
5. Ensure that the data about home energy efficiency improvements are incorporated into the appraisal process.

“Nowadays people know the price of everything and the value of nothing.”

Oscar Wilde, *The Picture of Dorian Gray*
Introduction to Green Buildings: Principles & Concepts
Case Studies in Appraising Green Residential Buildings
Case Studies in Appraising Green Commercial Buildings
Residential and Commercial Valuation of Solar
### Appraisal Institute - Valuation of Sustainable Buildings
Professional Registry Residential Listings

**Appraisers Accepting For Fee Assignments as of 8/28/17**

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**Total:** 346
Appraiser Education – New Course

Online, 8-hour continuing education approved course.

Rich Finigan
Amy McClellan
A new professional registry born out of energy efficiency and real estate educational collaboration.

Finding Qualified Professionals

Welcome to the Energy Efficient Professionals Qualifications Registry

The Energy Efficient Professionals Qualifications Registry (EEPQR – pronounced “ep-i-cure”) is the first “green” registry of real estate professionals. The EEPQR is designed to help consumers find real estate professionals who have the qualifications needed to assist with the home buying and selling process. Professionals listed in the registry have successfully completed advanced training in green building and sustainable practices, which makes them uniquely qualified to help buyers and sellers better understand the green features and benefits of a home.
7. Work with partner financial institutions to ensure selection of qualified appraisers.

Engaging Lenders Using: 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

http://bcap-energy.org/appraised-value-and-energy-efficiency-getting-it-right/
Engaging Lenders Using:
Appraised Value and Energy Efficiency: Getting It Right

Template letters for buyer and lender offer solutions:
- Prepares buyer for the mortgage application and appraisal
- What loan applicants need to do when seeking the mortgage
- For lender it describes why home is a special property type
- Provides a Registry where lenders can find qualified appraisers
- Explains course work those appraisers completed
Appraised Value & Energy Efficiency: Getting It Right – for Home Performance Contractors

**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 saving features and equipment (e.g., air and duct sealing, insulation, high-efficiency lighting, ventilation, and air conditioning equipment) as desirable features for which they are willing to pay more. The home may also have an addition built to the 2012 or 2015 International Energy Conservation Code (2012 NEC or 2015 NEC), which would make the addition between 15 and 18 percent more energy efficient than built to previous codes.

However, energy efficiency may be overlooked in the appraisal process for a variety of reasons, including a lack of access to quality data, understanding apprehensions, and appraiser qualifications. Many appraisers may not be aware of the unique features of an energy efficient home.

To ensure that a home’s green and/or energy efficient features and equipment are taken into account during an appraisal, it is important to document the home’s energy efficiency features in a standard format. The documentation may be completed as part of an energy upgrade through a program such as the Department of Energy’s Home Performance with Energy Star program or as part of the generation of a recognized energy performance score, such as the Home Energy Score (HES). A Home Energy Rating System (HERS) index, or other metric. It is also important for home sellers to choose an appraiser that is qualified to value green and/or energy efficient features of a home performing energy efficient homes in the local real estate market.

A Ready-Made Solution Exists

Fannie Mae, Freddie Mac, and Federal Housing Administration require appraisers to consider the energy efficient features of a home. There are many specialists available who can qualify to assess the value of these features that are often hidden behind the drywall.

What Can Contractors Do?

Contractors can help clients ensure that a qualified appraiser is selected by doing the following:

3. Prepare the homeowner to notify the lender that they require an appraiser that is qualified to value energy efficient, high-performance homes. Add your address, the property address, and contact information to the letter for Lenders. Direct your client to the letter being with information outlined in the bullet below to their lender.

**For Buyers**

**ENSURING A QUALIFIED APPRAISER FOR YOUR HOME**

Your home has higher energy efficiency or green standards than many others on the market because you as a previous owner implemented a whole-house energy upgrade, or installed green or high-efficiency equipment and features. However, you may require better than never before during the sell process. Your home may be more comfortable and durable to be in, and likewise have lower monthly energy bills than comparable homes without these features. Here’s an easy cost-saving solution you may not have thought about.

- More wall and ceiling insulation to keep conditioned air inside your home.
- Windows that keep the heat in and the summer to improve comfort.
- Fewer drafts and air leaks, which improve indoor comfort and reduce energy costs.
- High efficiency heating, ventilation, and air conditioning (HVAC) equipment and sealed ducts, which reduce energy consumption and increase comfort by distributing heated and cooled air evenly throughout the home.

**What You Need To Know Regarding the Loan/Appraisal Process**

Some lenders randomly assign an appraiser to estimate the value of a home. However, yours is not a typical home because it has higher performing building or even with various green high performance features. Fannie Mae, Freddie Mac, and Federal Housing Administration require appraisers to be qualified to appraise the specific property in the assessment. To ensure that the appraiser takes your unique features into account, you should clearly identify the property as a special property type, which requires appraiser qualified in the valuation of energy efficient, high-performance homes.

**What You Need to Do**

Provide your lender with one or more of the following information provided to you by the building contractor, homeowner, energy rate, and/or Energy Star (EES) report:

- The lender letter regarding this special property and the need for an appraiser qualified to value energy efficient, high-performance homes.
- A recognized energy performance score, such as the Home Energy Score (HES), or other metric such as the Home Energy Score (HES) for a home performance score (HPS). However, high efficiency heating, ventilation, and air conditioning (HVAC) equipment and sealed ducts, which reduce energy consumption and increase comfort by distributing heated and cooled air evenly throughout the home.

**For Lenders**

Dear Lender,

The home located at is a special property type. It is green and/or energy efficient, high performance features that may include:

- Existing home that has received an energy upgrade through a program such as the Department of Energy’s Home Performance with Energy Star program.
- Existing home with green, energy efficient or high performance features such as high efficiency HVAC, high efficiency lighting, air sealing, and similar features.

The home’s green and/or energy efficient features include:

- Increased comfort and durability due to better insulation, air leaks, and ventilation.
- Lower monthly energy bills than comparable homes.
- Higher efficiency heating, ventilation, and air conditioning (HVAC) equipment and sealed ducts.
- Reduced energy consumption, which results in significant cost savings.

A completed score of the Residential Green and Energy Efficient Addendum, and the energy report of available, or two years of utility bills should be included with the appraisal engagement letter. The appraiser shall review the building performance score (BPS). However, high efficiency heating, ventilation, and air conditioning (HVAC) equipment and sealed ducts, which reduce energy consumption and increase comfort by distributing heated and cooled air evenly throughout the home.

You can access a list of appraisers who may have none qualifications at the evaluation of California Building Code (ICC) or your local real estate market.

Some specialized appraisers have completed 108 hours of education and possess three years of experience. If the appraiser on your panel is not on the list, you can complete the required coursework in order to get started at [https://www.aieconomics.com/education/].

Appraisers on this list are not required to be Appraisal Institute members but must take the required courses and pass the exams to be listed.

If you have questions, please contact:

NAME: 
PHONE: 
EMAIL ADDRESS: 

Appraised Value & Energy Efficiency: Getting It Right - for Realtors®

FOR BUYERS
ENSURING A QUALIFIED APPRAISER FOR YOUR HOME

Your home has higher energy efficiency or green standards than many others on the market. It should be more comfortable to live in and have lower monthly energy bills. Homes built to the 2015 International Energy Conservation Code (IECC) and the current Vermont Residential Building Energy Standard, 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 improve indoor comfort
- Or, you may have a home built well before the new code but have invested in energy or green retrofits that makes your home more efficient than other homes built during the same time frame.

What You Need To Know Regarding the Loan/Appraisal Process

Some lenders randomly assign an appraiser to estimate the value of a home. However, yours is not a typical home if it is a higher-performing building or one with unique green features. Fannie Mae, Freddie Mac and FHA require appraisers to be appropriately qualified to appraise the specific property in the assignment. If you do not clearly identify the property as a special property type requiring an appraiser properly qualified in the valuation of energy efficient, high-performance homes, you may risk that an appraiser without the necessary qualifications will be chosen and that appraiser may not take these features into account.

What You Need to Do

Provide your lender with these things provided to you by the builder, homeowner, energy rater, green certification, or complete HERs Report:

- The lender letter regarding this special property type and the need for an appraiser properly qualified to value energy efficient, high-performing homes.
- The Appraisal Institute’s Residential Green and Energy Efficiency Addendum, completed, if possible, with the assistance of the builder, energy rater, or green rater.
- The Home Energy Rating System (HERs) Report (if available)
- Vermont Home Energy Profile and/or Home Energy Score Report (A rating of 1-10; applicable for existing homes only).
- Documentation certifying any 3rd party certified building certifications earned.

FOR LENDERS

Dear Lender,

The home located at:

is a special property type: it is green and/or energy efficient, high-performing home as shown below:

- Existing home with energy/Green retrofits

Description of energy efficient and/or green upgrades:

A copy of the Green and Energy Efficient Addendum form, and the energy report if available, or two years of utility bills should be included with the appraisal engagement letter. Fannie Mae, Freddie Mac and FHA require lenders to choose appraisers properly qualified to value the green and/or energy efficiency features of a high performing, energy efficient home in the local real estate market.

You can access a list of appraisers who may have those qualifications at the Valuation of Sustainable Buildings Professional Development Program Registry, available at:

www.myspecialistinstitute.org/findappraiser/green_sustainability_residential.aspx

These specially-trained appraisers have completed 28 hours of education and passed three exams. If the appraiser on your panel are not on this list; they can complete 14 education hours online to get started at:


Appraisers on this list are not required to be Appraisal Institute members but must take the required courses and pass the exams to be listed.

If you have questions, please contact:

NAME: ______________________________
PHONE: _____________________________
EMAIL ADDRESS: ____________________
An opportunity not to be surprised by calls for real estate professionals competent regarding energy efficiency and renewable energy.
Money talks – be fluent

Lenders need to convey that competence in appraising high performance homes is a must have in their rotation list or through their AMC.

Who has more influence on appraiser training than lenders?
Imagine a day when you enter an address into your MLS and **ALL** your listing’s **green features auto-populate** into the **MLS**.

Too much of this green stuff?
Questions?
Synergistic Activities

PV Auto-Pop and EMPRESS

Ben Hoen,
Lawrence Berkley National Labs

Richard Faesy,
Energy Futures Group
PV Auto-Pop: Update and Synergistic Opportunities with HELIX

Ben Hoen
HELIX Virtual Summit
Nov 15, 2017

This work was supported by the Office of Energy Efficiency and Renewable Energy (Solar Energy Technologies Office) of the U.S. Department of Energy under Contract No. DE-AC02-05CH11231
Capturing The Sun: A Roadmap

Lays out how solar characteristics can be “auto-popped” in MLSs

- Authors from real estate, appraisal, and MLS worlds
- Examines roadblocks
- Offers next steps
- Case studies from three geographies
Data required for auto-pop of PV listings:

- Address
- Size of the system
- Year the system was installed
- Ownership details
- Actual or estimated annual system output
Direct To MLS Pathway

Tax aggregator imports data from the existing solar repository, then feeds to MLS

- Existing Solar Repository
- Tax Aggregator
- MLS

MLS imports directly from the existing solar repository

- Existing Solar Repository
- MLS
Solar Industry Collaborative Pathway

- Installer Data
- Lender Data
- Other Data Sources

Solar Industry Collaborative Repository

Tax Aggregator

MLS

SunShot
U.S. Department of Energy

Berkeley Lab
Publicly Funded Pathway

- Permit Data
- UCC Filing Data
- Other Data Sources

HELIX

Publicly Funded Repository

Tax Aggregator

MLS

MLS

MLS
PV Auto-Pop Implementation Efforts Are Ongoing

5 Focus Geographies:
– Vermont
– Massachusetts
– Connecticut
– Southern California
– Colorado
The whole is greater than the sum of its parts.

Aristotle
Thank You

Ben Hoen
Lawrence Berkeley National Laboratory
845-758-1896
bhoen@lbl.gov

Links
*Selling Into The Sun*
*Appraising Into The Sun*
*Leasing Into The Sun*
*Capturing The Sun*
EMPRESS
(Energy Metrics to Promote Residential Energy Scorecards in States)

Richard Faesy, Energy Futures Group
The 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)
Background

- 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 two systems calculate and represent energy performance quite differently – leading to market confusion.
More Background

• Scores & Certifications:
  – LEED
  – Energy Star
  – HERS
  – HES
  – National Green Building Standard
  – Living Building Challenge
  – Etc.
• In the absence of transparency mandates, it’s challenging to reach widespread market adoption of home energy scores/labels

• Many EE program administrators are also reluctant to incorporate scores into their programs without receiving attributable savings credit

New policies & regulatory approaches are needed to promote/incentivize the use of energy scores
**Goal 1:** More closely align HERS and HEScore, so ratings and performance data are comparable and translatable

**Goal 2:** Develop and promote model policies and programs that encourage the voluntary use of residential energy data

**Goal 3:** Educate State Energy Offices, the real estate market, and other stakeholders on the policies, programs, processes, and market-facing information associated with a harmonized approach to home energy labeling
Key Tasks: Goal 1 (Harmonization)

- Facilitate conversations between stakeholders to reduce market confusion
- Standardize labeling tool outputs
- Produce a final report with recommendations:
- Support EnergyPlus as a common modeling engine for both systems
Label Recommendations

• Primary Metrics
  – HERS 1-100
  – Home Energy Score 1-10
  – Site MMBtu/year
  – kWh-Equivalent/year
  – Greenhouse Gas Footprint

• Cost Metrics

• Fuel Use and Price

• Supporting Information

• Supplemental Information

• Policy Objective
  – Greenhouse Gas Reduction
  – Energy Use Reduction & Cost Savings

• Program Design Considerations
  – Durable
  – Granular
  – Readily Understood by Consumers
  – Cost of Delivery
  – Finance Industry Recognition
Key Tasks: Goal 2 (Policies/Programs)

- Convene stakeholder roundtables
- Review legal issues associated with energy policy transparency
- Review existing national, state, and municipal policies and regulations
- Develop a policy toolkit to include models of policies, legislation, regulations, and governance frameworks for states
Key Tasks: Goal 3 (Education)

- Disseminate the policy toolkit to a wide group of stakeholders including state energy offices, governor’s energy advisors and state legislative personnel

- Share policy toolkit and harmonization recommendations at conferences in 2018, and through webinars, newsletters & websites
Timeline

• 2017:
  – Stakeholder roundtables
  – Energy label metrics recommendations
  – Policy toolkit
  – EnergyPlus Working Group

• 2018:
  – Harmonization recommendations to DOE, RESNET, states and jurisdictions
  – Toolkit and recommendations dissemination
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Becca.Trietch@energy.ri.gov

Ed Carley  
National Association of State Energy Officials  
970-485-3586  
ecarley@naseo.org
Questions?
The HELIX Pilot

The market and policy drivers for beta testing HELIX

Elizabeth Murphy, United Illuminating

Julia Dumaine, Connecticut DEEP

Meg Garabrant, New England Real Estate Network

Kevin Rose, National Grid Rhode Island
Using the Home Energy Score to Build an Energy Efficient Real Estate Market
1) What is Energize Connecticut?
2) Connecticut’s Vision for the Future
3) How Connecticut is implementing the Home Energy Score
4) Next Steps
Energize Connecticut

- Created in 1998 by the Connecticut Legislature
- $240 million, ratepayer-funded initiative dedicated to empowering Connecticut to make smart energy choices, save money, and use clean, affordable energy.
- Managed and administered by
  - The Connecticut Energy Efficiency Fund
  - The Connecticut Department of Energy and Environmental Protection
  - The Connecticut Green Bank
  - Eversource
  - United Illuminating
Energy Efficiency Fund Mission

- Advance the Efficient Use of Energy
- Promote Economic Development & Energy Security
- Reduce Air Pollution
Future State Vision

Energy Efficiency Market Driven by Consumer Demand in the Real Estate Market

- **Assessor:** Compiles DOE HES info
- **U.S. DOE:** Servers hold HES building files
- **HELIX:** Accessible Database with Privacy Restrictions
- **MLS:** Energy efficiency information auto-populated fields
- **Home Sellers:** Allows sellers to list information about their energy efficient investments in the property
- **Home Buyers:** Buyers become more aware of this information. Demand increases
- **Homeowners:** Increase efficient investments to maximize home value

Connecticut Department of Energy and Environmental Protection
Current State

Fast Facts
- 70% built before 1980
- 44% oil heated
- 80% single family

Statutory goal of weatherizing 80% of all homes by 2030

2030 Weatherization Goal Trend Analysis

- Trend estimate % total single family units HES / HES-IE compliant
- Trend estimate % total multi-family units HES / HES-IE compliant

Connecticut Department of Energy and Environmental Protection
Energize Connecticut: Home Energy Solutions (HES)

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

• Connecticut was first statewide implementer in April 2015
  – Over 25,000 scores generated to date!

• Home Energy Score is a feature of all HES assessments in qualifying homes

• All HES lead technicians are required to be Assessors
  – More than 200 active Assessors
HES Mobile Tool

- Customized Android app for tablet or cell phone
- Streamlines data collection for HES and Home Energy Score
- Collects customer signature on release electronically
- Models savings based on usage
- E-mails comprehensive report to customer while onsite, including Home Energy Score report with recommendations
Engagement with Solar & Green Bank

• 2017 Coffee and... matchmaking events hosted by utilities and Green Bank
  – Designed to integrate energy efficiency and solar
  – Promoted Home Energy Score to solar and home improvement contractors

• Home Energy Score report is now the preferred proof of energy audit required to access Green Bank financing and incentives
Engagement with the Real Estate Industry

• Currently in preliminary stages of collaboration with
  – MLS
  – Local realtor association

• Key topics during discussions
  – Connecticut is not mandating scores (voluntary)
  – Quality assurance and consistency
  – Data sharing
  – Educating the industry
Next Steps: HELIX Beta Testing

• Connecticut utilities are exploring participating in HELIX beta testing
  – Protection of customer data is primary concern

• Short term action items include:
  – Modifying the HES customer release to obtain customer authorization to share Home Energy Score data with third parties
  – Identifying how information will be shared with HELIX (automated versus manual data transfer)
  – Designating HELIX access
Next Steps: Further Industry Engagement

• Further integrate with the MLS
• Local realtor outreach
  – Continue to engage as many as possible
• Strategize appraiser engagement
• Continue labeling homes as HES assessments are completed
Meg Garabrant

Meg is the Director of Marketing & Communications for the NEREN® MLS serving all of NH and VT with listings and members also in MA and ME, and the ability for members and listings in RI and CT. Meg oversees third party integrations, product, and member training & education. She is responsible for ensuring RESO field compliance and she has been greening the MLS since 2008. Meg is Chair of the CMLS Green Section Council.
HELIX Project – Why MLS Involvement

- Training/Education/Awareness – over 10,000 users
- Data Standards / Technical Implementation
- Data Distribution
  - IDX (Member websites)
  - NEREN.com - Public-facing website – search listings
  - Third party websites (as directed)
- Resource repository
- Auto-Population (PV in place already)
- Measure Impact
- Improve
Data Standards

RESO develops, promotes and maintains, through an open process, voluntary electronic commerce standards for the real estate industry.
# Listing Input Forms

**Green Energy Efficient:**
- Appliances
- Constructions
- Doors
- Exposure/Shade
- HVAC
- Incentives
- Lighting
- Insulation
- Roof
- Thermostat
- Water heater
- Windows

**NEREN Residential Listing Input Form**

*Denotes Required/Conditionally Required field

**Green Energy Generation:** Solar / Wind

**Green Indoor Air Quality:** Contaminant Control / Integrated Pest Management / Moisture Control / Ventilation

**Green H2O (Water) Sustainability:**
- Conserving Methods
- Onsite Recycling Center
- Green H2O (Water) Conservation:
  - Gray Water System
  - Green Infrastructure
- Recyclable Materials
- Regionally-Sourced Materials
- Renewable Materials
- Salvaged Materials
- Low-Flow Fixtures
- Water-Smart Landscaping
- Water Recycling

**Green Verification Program (3 sets, if needed):**
- Blower Door Test
- ENERGY STAR Certified Homes
- EnerPhit
- HERS
- Home Energy Score
- Home Performance with ENERGY STAR
- Indoor airPLUS
- LEED for Homes
- NGBS New Construction
- NGBS Small Project Remodel
- NGBS Whole-Home Remodel
- Passive House (PHIUS+)
- Residential New Construction Svcs
- WaterSense
- Vermont Home Energy Profile
- Zero Energy Ready Home (DOE Challenge Home)

Effective 10/03/2017 - Copyright© NEREN®
Page 5/32
NEREN-057 Rev. e
# Listing Input Forms

**Power Production**

- **Power Production Type** (2 sets, if needed): Photovoltaics (Solar) / Wind
- **Mount Type**: Fixed Rack / Pole / Tracker
- **Mount Location**: Ground / Roof
- **Power Production Size**: __________
- **Power Production Annual**: __________
- **Power Production Annual Status**: Actual / Estimated / Partially Estimated
- **Power Production Year Install**: __________
- **Power Production Verification Source**: __________

<table>
<thead>
<tr>
<th>Administrator</th>
<th>Contractor / Installer</th>
<th>Program Sponsor</th>
<th>See Remarks</th>
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<td>Assessor</td>
<td>Other</td>
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<td>Builder</td>
<td>Owner</td>
<td>Public Records</td>
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Listing Input

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<td>Location</td>
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<td>Green Mold &amp; 3rd Party Ver.</td>
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<td>Lot</td>
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<td>Rooms</td>
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<td>Services</td>
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<td>Power Production</td>
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<td>Compensations</td>
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<td>Remarks/Disclousers</td>
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VT PV Auto-Population Pilot
VT PV Auto-Population Pilot
VT PV Auto-Population Pilot
VT PV Auto-Population Pilot
VT PV Auto-Population Pilot
VT PV Auto-Population Pilot
Property Reports

- Custom Search

- Custom Spreadsheet Results
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<th>Property Reports</th>
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<td><strong>Property Reports</strong></td>
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<td><strong>Power Production Type 2</strong></td>
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<td><strong>Mount Location 2</strong></td>
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<td><strong>Mount Type 2</strong></td>
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<th>Exposure/Shaft, HVAC Incentives</th>
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<td><strong>Green Energy Generation</strong></td>
<td>Solar, Wind</td>
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<td><strong>Green Indoor Air Quality</strong></td>
<td>Contaminant Control, Molding Control</td>
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<td><strong>Green H2O Sustainability</strong></td>
<td>Recyclable Materials, Regionally-Sourced Materials</td>
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Data Distribution Channels

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<td>(448) Homes.com</td>
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<td>(46) RPR</td>
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Intra-Office
IDX
VOW
Specialty Feeds
### Third Party Verification Data Sets

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<td>Green Verification Program 2</td>
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<td>Green Verification New Construction 3</td>
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# NEREN® MLS – Next Steps

<table>
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<tr>
<th>Evaluate &amp; Improve</th>
<th>Green Verification Programs</th>
<th>Power Production Data onto CRS Property Reports</th>
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<tr>
<td>Power Production Data searchable in CRS</td>
<td>NH, MA, ME, RI, CT PV Data</td>
<td>HELIX Data Auto-Population?</td>
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</table>
R.I. Home Energy Score Pilot

Kevin Rose
HELIX Virtual Summit
November 15, 2017
Pilot Basics
Drivers
Challenges/Lessons Learned
Discussion
Pilot Basics

- Launching now
- 150 homes
- Incorporated into our Home Performance program
- Thanks to RI OER for convening Working Group
Drivers

- **Short-term**: does HES increase retrofit conversion rate?
- **Mid-term**: does HES generate repeat customers?
- **Long-term**: does HES nudge market towards efficiency?
- Related: energy code compliance
Challenges / Lessons Learned

- Rescoring of homes post-retrofit

- Customer Consent Agreement
  - Opt-in: goal was to make this short and sweet
  - When/how should we provide this to customer?

- DOE and NEEP will work with you
Questions?

Kevin Rose
Sr. Program Manager, Mass./R.I. Codes & Standards
National Grid

Kevin.Rose@nationalgrid.com
Questions?