Better Buildings®
U.S. DEPARTMENT OF ENERGY

Bringing Home Energy Information to Real Estate: A Toolkit

A Product of the Better Buildings Home Energy Information Accelerator

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About the Better Buildings Home Energy Information Accelerator

The Home Energy Information Accelerator was designed to expand the availability and use of reliable home energy information at relevant points in residential real estate transactions. It functioned as a collaborative effort among national organizations, federal agencies, and regional, state, and local leaders in real estate and energy efficiency. Accelerator Partners developed and demonstrated replicable, sustainable approaches that make energy related information – useful data that is often missing from the home buying process – easily available to home buyers and sellers through multiple listing service (MLS) and other reports.

Partners of the Home Energy Information Accelerator have worked to:

- Develop and expand the pipeline of reliable home energy information from residential energy efficiency and energy labeling programs (e.g., Home Energy Scores, Zero Energy Ready Homes, ENERGY STAR Homes, Green Button data).
- Develop and implement streamlined systems that leverage existing data standards and protocols and enable the automated flow of home energy information from credible sources (e.g., efficiency programs or contractors) to relevant users (e.g., MLSs, property record aggregators, real estate agents, appraisers, lenders, underwriters, public records databases).
- Promote targeted outreach and training efforts for key stakeholders (e.g., efficiency contractors, real estate agents, appraisers, lenders, home inspectors, homeowners and homebuyers) regarding how to produce, access and use home energy information throughout the real estate transaction process.
- Create resources to help other communities nationwide replicate successful approaches identified by Accelerator Partners.
- Recognize champions, highlight their successes and encourage adoption of best practices.

The Home Energy Information Accelerator functioned through the U.S. Department of Energy (DOE)'s Better Buildings program through leadership in the Building Technologies Office (BTO) (January 2015 to May 2018).

Buying a home is among the most significant investment decisions Americans make. Homebuyers are understandably interested in getting reliable information about the homes they are considering so that they can make informed purchase decisions. First-time home buyers appreciate being able to predict future home expenses, such as likely maintenance, repair and utility costs. Until recently, it's been difficult and costly to get credible information about how much energy a home is likely to use, reducing homebuyer understanding of home affordability.

Fortunately, new tools make it much easier to evaluate and communicate a home's energy performance to buyers and others involved in the real estate transaction. This Accelerator aims to make home energy information, such as the home's estimated annual energy usage or certification that a home meets specified efficiency criteria, much more readily available. This way, finding out how much a home's energy bills are likely to be will be as easy as looking up a home's age, size, or school district.

Home Energy Information Accelerator Partners

The resources put together in this toolkit only came to fruition because of the hard work and dedication of the many Home Energy Information Accelerator Partners. These organizations, listed below, worked cooperatively and with countless organizations locally to establish reliable and standard home energy databases, engage local real estate industry stakeholders to enable use of this information, and build consumer awareness of and demand for home energy information.

- Appraisal Institute
- Build It Green
- California Regional MLS
- CoreLogic
- Council of Multiple Listing Services
- Earth Advantage
- Elevate Energy
- Enhabit
- Green Button Alliance
- Home Innovation Research Labs
- Home Performance Coalition
- Homes.com
- Information and Real Estate Services, LLC
- Midwest Real Estate Data
- National Association of REALTORS®
- National Association of REALTORS® CRTLabs
- National Association of State Energy Officials
- Northeast Energy Efficiency Partnerships
- Oregon Department of Energy
- Picketfence.com
- Real Estate Standards Organization
- Realtors Property Resource, LLC
- Regional Multiple Listing Service
- Rocky Mountain Institute
- State of Colorado
- U.S. Dept. of Energy Building Technologies Office
- U.S. Green Building Council
- Vermont Energy Investment Corporation

Participation in the Home Energy Information Accelerator took shape in two primary ways: (1) implementation of pilot projects in five U.S. regions, and (2) development of resources and tools applicable on a national scale. The five pilot projects took place at a variety of scales: Portland, Oregon; Chicago, Illinois; State of Colorado; State of California, and a partnership of twelve northeastern states through the Northeast Energy Efficiency Partnerships (NEEP). These pilots involved collaboration between local and national stakeholders, and are referred throughout the toolkit as the Portland, Chicago, Colorado, California, and Northeast pilots.

About the Better Buildings Initiative

The Better Buildings Initiative is a national initiative calling on private, public, and non-profit organizations across all sectors to make substantial commitments to improve the energy efficiency of their buildings and plants, save money increase home ownership affordability, and increase competitiveness. The U.S. Department of Energy (DOE) expanded this initiative to engage leaders in a set of Better Buildings Accelerators designed to demonstrate specific innovative policies and approaches, which upon successful demonstration will accelerate investment in energy efficiency across our homes, buildings, and industrial facilities.

Introduction

The Home Energy Information Accelerator was designed to expand the availability and use of reliable home energy information at relevant points in residential real estate transactions. It functioned as a collaborative effort among national organizations, federal agencies, and regional, state, and local leaders in real estate and energy efficiency. Accelerator Partners developed and demonstrated replicable, sustainable approaches that make energy related information – important data for the home buying process – easily available to home buyers and sellers through multiple listing service (MLS) and other reports.

This work was based on the following assumptions: (1) For consumers to demand efficiency upgrades in the residential sector, they must first be aware of their home's energy features to understand, appreciate, and invest in a home energy upgrade. (2) One key way of increasing that awareness is through the real estate transaction process and enabling home energy information to inform the home's appraised value. (3) To have home energy information influence home value, the real estate industry (i.e., REALTORS®, appraisers, and mortgage lenders) must have access to and knowledge of how to use reliable and standardized home energy data.

Connecting the dots from home energy information databases to real estate professionals, and then to consumers, will grow the market for energy information and efficiency improvements.

How to Use This Resource

This document helps readers interested in improving access to home energy information navigate the many resources, lessons learned, and best practices developed through the Home Energy Information Accelerator. Although written for an audience of energy program administrators and efficiency leaders, resources referenced in this document can be used by REALTORS®, appraisers, lenders, and homeowners directly. By centralizing these resources in one place, we hope to continue to accelerate these processes for easier implementation nationwide.

Project Areas

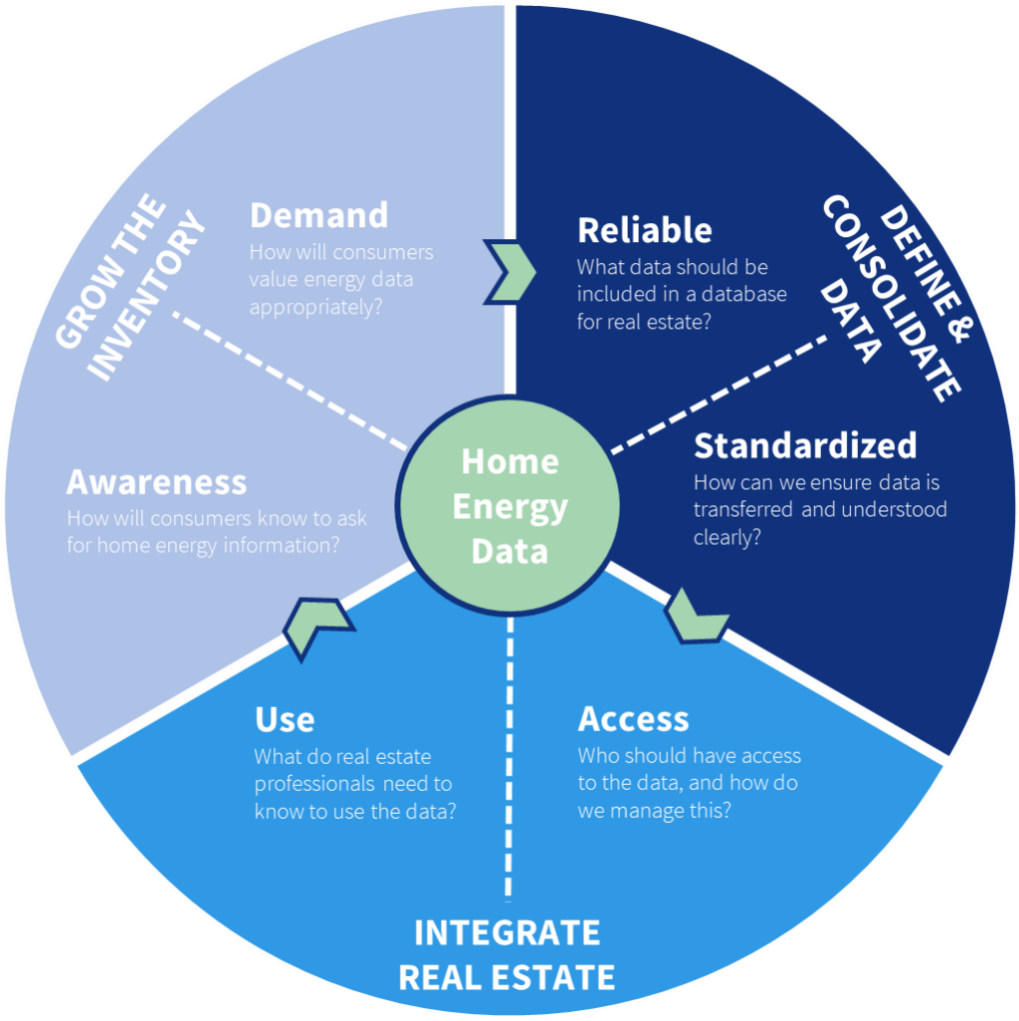
The Accelerator identified three major project areas to accelerating the path of home energy information toward consumers in the real estate market:

- Define and consolidate data,
- Integrate data with real estate, and
- Grow the inventory of data.

As such, this document and the resources created through the Accelerator have been divided into these categories. While we recommend reading through the document in order, implementation of these project areas is non-linear, and involves collaboration across industries from the beginning. This order is suggested, based on the Accelerator's experience, but it may make sense to start at a different place depending on the most engaged stakeholders and resources.

Figure 1 is a visualization of these project areas, the key questions to address in each project area, and the framework connecting them.

Figure 1. Project Areas & Logical Framework



Define & Consolidate Data

For home energy information to impact the real estate transaction, reliable data must exist and be held in a standard format. This section focuses on how to define and consolidate the necessary data for home energy information to be appropriately used in the real estate transaction. It contains resources regarding automated efficiency models (AEMs) and data-sharing compliance languages to ensure all systems run smoothly. It also includes access to open source code from the Northeast pilot, which created the Home Energy Labeling Information eXchange (HELIX), and links to Earth Advantage's Green Building Registry™ website as used in Portland, Oregon.

Integrate Real Estate

For the data to be used by the real estate industry, real estate professionals must have access to the appropriate data points at key moments in the home transaction and have enough knowledge of the data to use it correctly. This includes engaging and educating REALTORS® and home appraisers on best practices. This section focuses on outreach to real estate communities and features documents designed for use by appraisers, REALTORS®, and multiple listing services (MLSs). It also provides sample language used by various pilots to allow homeowners to either opt-in or opt-out of providing real estate access to their home's energy information.

Grow the Inventory

Finally, there is also the necessary work of scaling the market of home energy data to populate databases and engage homebuyers. This includes reaching consumers through homebuyer trainings and engaging mortgage lenders and other financers about how they can utilize home energy information in their products. State and local policy can also help engage consumers and drive production of home energy data. This section focuses on building awareness and demand for home energy information and includes information that can be brought to home buyers, lenders, and state and local governments to enable a local market. It also provides links to ordinances in Portland, Oregon, Berkeley, California, and Chicago, Illinois that enable home energy information inclusion in the standard real estate transaction process. Although passing an ordinance is not a requirement to building consumer awareness and demand, it is one way to accomplish this goal and has been supported in some local jurisdictions.

Complementary Resources:

Elevate Energy's resource, Unlocking the Value of an Energy Efficient Home, published in 2013, establishes a blueprint to making energy efficiency improvements visible in the real estate market. Use this resource for guidance on what first steps may help you move forward in your community. You can also find more detailed information in Lawrence Berkeley National Laboratory (LBNL)'s report, Capturing Energy Efficiency in Residential Real Estate Transactions, which was published in 2015. The Home Energy Information Accelerator Toolkit builds off both documents and links to newly available resources developed through the Accelerator.

Part One: Defining & Consolidating Data

There are many potential benefits of more accurately accounting for home energy features within real estate transactions. Homebuyers can gain a more complete understanding of how comfortable a home might be to live in and the home's associated energy costs, through which they gain a better understanding of the home's affordability. Home sellers can showcase energy-related home upgrades they have made and receive added value through a sales price premium. These factors could better enable growth of the residential energy efficiency sector, thereby supporting the local economy and American jobs. Investments in energy-saving technologies can also help improve grid reliability, reduce overall electricity prices, and minimize air pollution.

To take full advantage of these benefits, real estate transactions must utilize home energy information that can be trusted as both reliable and standardized. Unreliable energy data hurts consumers by adding to market confusion about the value of energy features. Energy information that overstates a home's performance is at risk of 'greenwashing,' or inaccurately suggesting large benefits for health or the environment. Energy information that understates a home's performance can mean money left on the table and the home being undervalued.

Energy data can be considered reliable if it is calculated from up-to-date and comprehensive data sources through trusted energy modeling software. The Real Estate Standards Organization (RESO) has the RESO Data Dictionary that helps define home energy data as reliable if it comes from an official "green verification." Beyond reliable, the format and definitions of the data must also be standardized to ensure consistency, quality and accuracy.

This section addresses two major questions:

- What data should be included in a database for real estate?
- How can we ensure data is reliable and standardized when transferred to local MLSs?

This section provides tools and questions for identifying which data sources may be most appropriate for your needs and market. Discussions with a variety of local stakeholders can better ensure that the data collected and maintained in your database will be trusted and therefore relied upon by all necessary parties.

Reliable

To simplify communication, the Accelerator uses the real estate industry definition of "verified" data for reliable home energy data. This gives us a language for talking about home energy data that comes from reliable sources. This data is recommended in the Council of MLS (CMLS)'s Home Energy Information Guide for use in home listings. Home energy data is considered "verified" if:

- Data inputs are collected by a trained, third-party organization or individual to reduce bias in data collection.
- The energy model is reviewed regularly and evaluated against other tools to refine accuracy.
- Program implementation is subjected to transparent quality assurance processes.

Asking the following questions about datasets can help you gauge whether a data source is reliable or not:

- Is data from an on-site assessment of the home or pulled from public record?
- Do the individuals collecting the data receive training on how to do so? Do they hold credentials?
- Does the data-collecting organization employ quality assurance processes to verify the proper completion of the upgrade?
- Are the data collectors biased to make the home appear better or worse than it really is?
- How recently was the data collected?
- Do evaluation studies validate that the energy modeling software is trustworthy?

Many verified home energy information sources use building energy models, like the U.S. Department of Energy's Home Energy Score™ and the Residential Energy Services Network (RESNET) Home Energy Rating System (HERS). Stakeholders outside of the building energy modeling and energy efficiency communities may be confused about the value and validity of building energy models. Energy models are helpful because they can consolidate a large amount of information about a home's energy features while also allowing for standard assumptions to remove confusing variables from the dataset. For instance, energy models can create estimations of a home's annual energy use without biases of how different occupants may use the home. However, an energy model is only as reliable as the information entered into the model about the home; therefore, these programs include training for data collectors.

Additional Data in the Field

There are two home energy data sources that are readily available around the country but are not your typical verifications or labels. One of these is automated efficiency models (AEMs). According to CMLS's Green Sheet, "AEMs are categorized as any algorithm or scoring model that estimates the energy usage of a home without an on-site inspection". They are often heavily reliant on data available through public records. These tools are gaining visibility in the real estate market, as they may be found on real estate portal websites. Assessing the accuracy of these tools, however, can be a challenge. Rocky Mountain Institute (RMI)'s, "An MPG for Homes," evaluates two AEMs in the market and their accuracy. However, most AEMs do not have processes for quality assurance, on-site inspection, or external review. More research is needed to determine the accuracy of publicly available data inputs for these tools.

Another home energy data source worth considering is energy bills. Although energy bills exist across the country, they are typically not easily accessible from a public database. Unless otherwise stated by a local government – for instance, in Chicago energy bills can be included in real estate listings – energy bills are commonly considered private information that may be challenging for real estate stakeholders to access. This is because energy bills represent not only a home's structure, but also how residents use the building and its energy features. Efforts by the Green Button Alliance have made usage data more accessible to end users through the Green Button Initiative. It is used by numerous utilities and other partners to access real customer usage data.

How residents use energy in homes represents another variable to a home's energy usage on top of the home's energy features conveyed at time of sale. Homes that are newly built, vacation homes, or unoccupied may have energy bills that do not represent typical use for the next resident. While energy bills reflect actual energy, they also reflect residents' lifestyles and other variables including weather, whereas energy modeling software account for and normalize those factors in calculating a home's energy usage.

Energy bills and AEMs are not considered "green verifications" as defined by the Real Estate Standards Organization (RESO). Although requiring more time and energy to collect, green verifications likely represent the most researched, independently verified, up-to-date, and least biased energy data available. These are discussed in greater detail in the next section on integrating with real estate.

Consolidating Reliable Home Energy Data in Your Region

In a perfect world, homebuyers would have easy access to reliable and standard home energy information on every home. Instead, that information is inconsistently available through a patchwork of sources including public record, residential energy efficiency programs, and home sellers themselves. Assessing the availability and pervasiveness of existing home energy data in your area can help you begin the process of building a database and determining which home energy information programs will be best suited for your region.

Once you have decided which data sources will be best suited for your region to provide reliable, verified home energy information, you will also need to define which data fields will be most helpful for the real estate community. Some green home verifications come with multi-page reports defining nearly every characteristic of the home. Not all this

information is useful to real estate agents. It is not realistic for real estate agents to sift through pages of information and explain useful pieces to their clients. Instead, work with stakeholders to ensure the most important data elements are shared, while the rest of the data may be accessible for those interested but not as readily featured. The pilots found the following data helpful:

- Annual home energy costs (estimates or bills from previous occupant)
- Annual home energy use (MMBtu or combination of kWh and therms)
- Home Energy Score, HERS Rating, or other home energy label
- Date of the home's energy assessment (or year that the information was collected)
- Specific home energy improvements and their associated costs

You may also want to consider adding and expanding programs in your region to better enable the creation of more reliable home energy data. The last section of this toolkit, "Grow the Inventory," addresses this area.

Standardized

After local stakeholders have determined the appropriate data to bring to real estate transactions, the next step is to utilize accepted data languages and standards to seamlessly transfer data from energy programs through a database to the real estate market. Without such standards, data can be easily misunderstood, and therefore lose its value, in influencing real estate.

Leverage existing industry standards for residential energy efficiency, real estate, and financing industries to expedite development of a database to house real estate data. Some of these standards are described below. To learn about how these data standards work together and how to use them, read this fact sheet created by Elevate Energy.

- ***Home Performance Data Standard: HPXML (BPI-2100 & BPI-2200).*** *HPXML is an open data standard that facilitates the cost-efficient transfer of information used to describe a home's energy efficiency features and performance. Software companies use HPXML for a variety of purposes, including to document and share green verifications for homes. This enables a smoother transition of home performance information to real estate stakeholders. Learn more at the HPXML website.*
- ***Multiple Listing Service Data Standard: RESO Data Dictionary.*** *RESO Data Dictionary defines the data fields and pick-list values used on MLSs nationwide as well as in Canada. It now contains "green verification fields" that describe a home's energy efficiency ratings, fields and values that local MLSs can choose to adopt by adding to their listing input forms and in their MLS software for brokers and agents. Learn more at the RESO Data Dictionary website.*
- ***Mortgage Industry Data Standard: MISMO Data Dictionary & XML.*** *MISMO defines the standards for data fields used by mortgage lenders and financers nationwide. The MISMO Data Dictionary and XML are managed by the Mortgage Industry Standards Maintenance Organization (MISMO), which is a subsidiary of the Mortgage Bankers Association (MBA). Learn more at the MISMO website.*

DATA SPOTLIGHT:
VERONIQUE BUGNION
CLEARLY ENERGY
HELIX DEVELOPER

"

The Home Energy Labeling Information eXchange (HELIX) was developed to help states, utilities, and cities manage residential energy data and easily share this information with real estate market participants. The HELIX architecture has several levels of user access privileges, allows multiple data entry formats, and automates exports to Multiple Listing Services via an API. Record matching in HELIX is facilitated by data standards such as BEDES, HPXML, and RESO's data dictionary. These standards ensure data is well organized as it enters and exits the database, making it useful to all end users.

"

Technical Language

Some Home Energy Information Accelerator partners found creating a home energy information database the most straightforward way to ensure trusted information is accessed by appropriate parties. This also more easily allows for data auto-population into the MLSs.

There are a few ways to undertake creating a home energy information database for your region. One database, the Home Energy Labeling Information eXchange (HELIX) was funded through DOE's State Energy Program and provides open source code and guidance documentation online. The HELIX project has been made possible by the U.S. Department of Energy, Vermont Public Service Department, Massachusetts Department of Energy Resources, Rhode Island Office of Energy Resources, NHSaves, Energize Connecticut, and continued input from stakeholders from across the Northeast region and beyond. Another database, the Green Building Registry™ was funded by California and developed by Earth Advantage under the supervision of DOE, Lawrence Berkeley National Laboratory (LBNL), and the National Renewable Energy Laboratory (NREL). Both were developed off of DOE's Standard Energy Efficiency Data (SEED) Platform to serve other municipalities, state agencies, and energy efficiency programs and to handle a variety of data beyond Home Energy Score, including green certifications and solar data.

- HELIX Open Source Code Website
- Green Building Registry™ Website

Examples from the Field: Defining & Consolidating Data

In 2015, Earth Advantage began planning to develop a tool providing verified home performance data to the real estate market. For two years Earth Advantage and the Portland MLS – Regional Multiple Listing Service (RMLS) – made plans but did not progress with testing a system. On December 14, 2016 the City of Portland, Oregon, adopted a rule requiring home sellers to obtain and disclose the city's Home Energy Score report on the MLS at the time of listing. That ordinance was the spark to move the Green Building Registry™ from the drawing board to reality.

For Portland, the system validates Home Energy Score data and allows assessors to create the custom City of Portland Home Energy Score report for ordinance compliance. RMLS connects to the Green Building Registry™ through a proprietary application programming interface (API), which allows real estate professionals to comply with the rule by clicking a "download" button. Although manual data entry is still allowed by RMLS, over 80% of listings take advantage of the auto-population capability. The Green Building Registry™ also provides a publicly accessible website where anyone can search for green and energy efficiency data, if available, for a home. Earth Advantage is working with Energy Trust to source more verified home performance data and add it to the Portland Green Building Registry. Building on success in Portland, Earth Advantage will launch a Green Building Registry™ for the state of Missouri in 2018. The Missouri Green Building Registry will import both Home Energy Score and HERS data. The two types of data will be synthesized into a single report format.

Similarly, Vermont Energy Investment Corporation (VEIC) and Northeast Energy Efficiency Partnerships (NEEP) funded Clearly Energy to create a home energy information database as part of their State Energy Program (SEP) grant. The database, called the Home Energy Labeling Information eXchange (HELIX), enables a variety of home energy information to be linked to addresses and pulled to MLS listings. NEEP has so far established technical systems that allow Home Energy Scores to be pulled directly into HELIX through agreements with implementing Partners, including Energize Connecticut and Rhode Island's National Grid. Additionally, they have established agreements to pull solar photovoltaic data from the State of Vermont and HERS Ratings from RESNET. By setting up agreements and APIs with local MLSs as well, HELIX will enable fully automated transfer of home energy information. HELIX's data automation is made possible through compliance with both the Building Energy Data Exchange Specification (BEDES), which includes HPXML, and the RESO Data Dictionary.

Now, both HELIX and the Green Building Registry™ are fully functional, market-ready tools that can be adopted by other cities or regions to implement home energy data transfer to the real estate market.

In Colorado, although a basic version of a home energy information database was created, a pilot of auto-population was not conducted. Both the local MLS – Information and Real Estate Services (IRES) – and Colorado Energy Office (CEO) had concerns about whether the data could be maintained as accurate, verified and up-to-date information over time. IRES is still interested in connecting via API to a source of verified home energy information for inclusion in listings, but do not want listings to be directly auto-populated with that data. It is their preference that the data be supplied through a service similar to Walkscore. IRES also prefers the database to provide a comprehensive set of verified data such as distributed energy generation, Home Energy Scores, HERS ratings and green certifications. This would enable them to manage one connection for green data and in the future provide data across multiple counties within their MLS service territory.

Summary of Resources

Resources for Defining & Consolidating Data	
Resource	**Target Audience**
An MPG for Homes. *Rocky Mountain Institute.* ▶ Evaluates the accuracy and application of automated home energy estimates.	Energy Efficiency Leaders
Visible Value Blueprint. *Elevate Energy.* ▶ Seven-step blueprint to make energy efficiency improvements visible in the real estate market.	Energy Efficiency Leaders
CMLS Green Sheet: Automated Efficiency Models. *Council of Multiple Listing Services (CMLS).* ▶ Primer to educate the real estate industry on AEMs.	MLS Managers
An Energy Efficiency Love Story: How Data Standards Come Together for Visible Value in Real Estate. *Elevate Energy.* ▶ Schematic showing how home performance data languages and standards can work together.	Energy Efficiency Data Managers
HPXML Website. *Home Performance Coalition.* ▶ Explanation of the value of using HPXML as a tool for home energy data transfer.	Energy Efficiency Data Managers
BPI2101 Standard Requirements. *Building Performance Institute.* ▶ Document clarifying the requirements for compliance with BPI2101 Standards.	Energy Efficiency Data Managers
RESO Data Dictionary Website. *Real Estate Standards Organization (RESO).* ▶ Fully downloadable resource of RESO-compliant data fields and appropriate use.	MLS Managers

Part Two: Integrating Home Energy Information into the Real Estate Market

Successful incorporation of home energy information into residential real estate transactions necessitates standardized, reliable data. It also requires engagement with the local real estate community, since building a database of viable home energy information is best accomplished with support from local real estate leaders. If program administrators educate real estate professionals on how to integrate this data into their workflows, they will be able to make use of a resource that they may not have otherwise understood how to use or even known to exist.

This section of the toolkit will help answer the following questions:

- Who should have access to the data, and how should access be controlled?
- What kind of training do real estate professionals need to use the data effectively?

Access

The first step to integrating home energy data into the local real estate community is ensuring that relevant parties have access to it. Real estate professionals may include home energy information in an MLS listing in two ways:

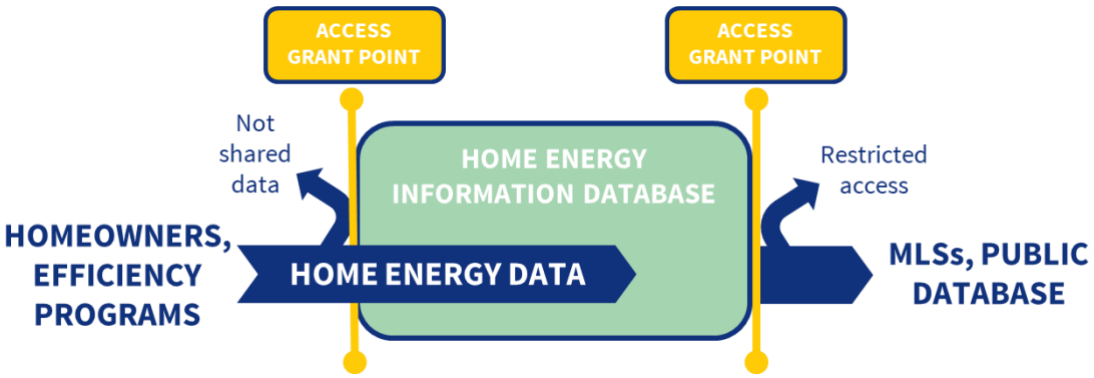
- By entering information into the home's data fields as collected from the homeowner or local efficiency program, or
- By pulling data from a home energy information database that auto-populates the fields.

While the first method minimizes IT and system integration costs, it may require more intensive outreach and education efforts. The latter approach allows for greater confidence that data is entered correctly and at a higher frequency. However, the latter approach also requires more long-term plans for funding streams to sustain the database.

Another factor to consider is the complexity of access permissions. In the first approach, the process is straightforward. If the seller agrees to give the information to the real estate agent, permission is granted. However, with a database, one must consider how individuals will receive permission to use the data, and how to ensure that key stakeholders can access and transfer it to the MLS.

Access to the data is determined at two points: when data comes into the database, and when it leaves the database. This is illustrated in Figure 2 below.

Figure 2. Data Access & Flow



How Data Comes into the Database

Before granting access to any user, the program administrator must ensure that the data's owners have consented to the data entering the database in the first place. Data that will be included in the real estate transaction should be defined as publicly-available, and all data in the database should be relevant to the real estate transaction.

There is a myriad of opinions regarding how this information should or should not be shared. Programs in Portland, Oregon and the Northeast are good examples of programs that have brought together real estate, energy efficiency, and local government stakeholders for data management conversations to meet everyone's needs. Below are ways of removing access barriers before populating a database with home energy information:

- Determine all data from efficiency programs is public and notify homeowners that by participating in home labeling or certification programs, they consent to releasing that data to the local MLS. A local ordinance clarifying the nature of data that can and cannot be included in the database may be helpful.
- Notify homeowners that the data associated with their green verifications will be included in a database accessible to real estate stakeholders unless they opt-out.
- Notify homeowners that, if they choose to opt-in to the database, the data associated with their green verifications will be included in a database accessible to real estate professionals.

Different precedents for data privacy exist depending on the type of information being conveyed. Utilities consider customer energy billing data to be private information. Home asset information, i.e., information about the building structure and energy features, is often included in tax assessor public record information available online. Some public records may feature ratings for homes based on their construction quality or condition.

Due to the localized scope of the real estate industry, many energy efficiency leaders have partnered with other local stakeholders to develop a regional system that reflects local precedent and meets place-specific stakeholder needs. See the opt-in/opt-out language provided in this section for example language alerting homeowners about data use through the paths outlined above.

NEEP worked with Vermont Law School to research precedent and best options for addressing privacy concerns around home energy information. As a rule, contractual relationships determine the rules of data privacy unless they violate state laws. Inclusion of either opt-in or opt-out data-sharing clauses may be helpful for programs to ensure all parties are informed about data use.

How to Access Data in the Database

The second step to granting access appropriately is to ensure that REALTORS®, MLS managers, home appraisers, and home inspectors can utilize the data in their work. Below are common approaches to managing their access:

- Grant database connectivity through a fee-for-service application programming interface (API), which allows client MLSs to match homes between the databases based on their address, parcel, or another unique building identifier. Professionals with regular access to the MLS will then be able to use relevant home energy information.
- Grant database access to local, relevant MLSs as well as real estate professionals through a membership, password, or other mechanism. Develop criteria for granting access to professionals that could benefit from accessing data prior to a home's listing on the MLS.
- Publish the database online with no password protection, thereby granting public access. This set up has been utilized in Portland, Oregon through an online, public access point that is searchable by address. Throughout most of the country, public record includes some energy information such as heating fuel type, conditioned floor area, and AEMs.

Again, engagement with local government and real estate stakeholders in this process is key to creating a solution accepted and understood by all.

Use

Once real estate professionals have access to home energy information, they then must be able to incorporate the data into their workflows. Educational workshops, presentations, and resource materials for real estate agents and appraisers are necessary for the data to actually influence a real estate transaction. Trainings should address how to:

- Access home energy information from clients;
- Recognize unreliable energy information;
- Identify which data point(s) are most helpful for their clients and their work (whether listing, appraising, or inspecting the home); and,
- See the larger significance of including home energy information to clients.

Different real estate professionals may require specific pieces of home energy information for their work. For example, a listing agent will want to emphasize a home's green features or upgrades in a listing. A buyer's agent may want access to annual energy bill estimates to share with their client. An appraiser may be interested in quantifying the investment that a seller has put in the home's energy improvements. Home inspectors and lenders may be more interested in seeing many parts of a home's energy report to get a more holistic picture of the home. Presentations and educational materials for each of these audiences should be adjusted to reflect their anticipated needs.

Benefits for Real Estate Professionals

There are many motivators for real estate professionals to learn how to utilize home energy information in their work. They can harness it to help homeowners that have made upgrades sell quicker and for more money by providing helpful information to prospective buyers. They can more accurately determine a home's value, and they can ensure homebuyers get a more comprehensive idea of what the experience of living in their new home – and associated costs – will entail. With access to home energy information, real estate professionals can also provide resources to help new homeowners make upgrades that will improve their comfort. Finally, third-party verifications ease liability concerns related to misrepresenting or "greenwashing" a home.

Barriers Real Estate Professionals Face

Despite the benefits of expanded access to home energy information for real estate professionals, there are several barriers to successful utilization. Many professionals working in real estate have no background in building science and may be intimidated by the topics of energy and electricity. Further, the landscape of residential energy information is changing rapidly; every year brings new technologies, rebates and incentives, and evolving terminology. Clients are also likely to be confused by these subjects and may not know what questions to be ask for the information they need. Use the presentation, Energy

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YELLOW BRICK PROPERTIES™
NAR GREEN AWARDEE, 2017

"I often work with clients who are interested in higher performing homes, but do not know exactly what to look for. On a tour of a home, the home seller greeted my clients and me at the door and toured us around. We went to see the ventilation system, and he kept using the term 'tight.' This is a 'tight' house, so the ventilation system is important, this house is so 'tight' that that furnace is very small, etc. I asked my clients: 'Do you know what he means by a tight house?' They looked at me, shrugged, and said, 'It's too small?' My clients were downsizing and downsizing too much was a concern of theirs. Being able to translate the meaning of 'tight' to them in a simple and concise way was crucial to them seeing the value of a high performing home."

Efficiency for Real Estate Professionals as a starting point for communicating the value of energy information to a real estate audience.

Roles of Green Verifications in the Market

In the world of residential real estate, the amount of available energy-related information can be overwhelming, sometimes even about a single home. To help real estate professionals and consumers make sense of it all, the real estate industry has helped define types of reliable energy products, known as "green verifications". To qualify as a "verification," the information must be provided by a third-party program with established quality assurance protocols.

There are three types of verifications: green certifications, energy labels, and verified energy improvements. The table below acts as a quick guide to clarify the differences between these home energy labeling products. Since most consumers are familiar with labels and statements shown on food products, there is a food-related example for each of the categories to elucidate the purpose of these different verifications in the marketplace. For more detailed information about green verifications and their use in the market and MLSs, visit CMLS's Home Energy Information Guide.

Table 2. Types of Green Verifications

Green Verification	Parallel Food Industry Product
Green Certifications • Recognize homes for achieving specific thresholds, either related to energy features and/or overall performance. • May have different levels of recognition (e.g., silver, gold, emerald, etc.) • Popular programs vary by market. ENERGY STAR · ZERO ENERGY READY HOME U.S. DEPARTMENT OF ENERGY · U.S. GREEN BUILDING COUNCIL LEED USGBC · PHIUS Passive House Institute US CERTIFICATION · Home Innovation NGBS GREEN CERTIFIED	USDA ORGANIC **Certified Organic.** Food items must achieve specific standards for verification.
Energy Labels • Provide standardized and reliable energy information for any home. • Compare homes to an accepted standard, such as to building energy codes or average U.S. home energy use. • Show current state of home's energy assets. U.S. DEPARTMENT OF ENERGY Home Energy Score · RESNET HERS® INDEX	Nutrition Facts Serving Size ½ cup (300g) Servings Per Container: 4 Amounts per Serving Calories 250 Calories from Fat 130 **Nutrition Facts.** Any food item can feature this to clarify its contents in a standardized way.
Verified Energy Improvements • Provide proof of energy upgrades made to the homes. • May highlight differences between upgraded homes and non-upgraded homes. • Does not show whether specific thresholds have been achieved, but may include an estimate of energy savings associated with upgrades. HOME PERFORMANCE WITH ENERGY STAR	REDUCED FAT 40% LESS FAT THAN BEFORE **Reduced Fat.** Food items can show they are improved from a previous version.

The National Association of REALTORS® (NAR) has a Green Designation program, which helps REALTORS® become prepared to work with green verifications and understand the benefits of resource-efficient homes. This two-day program is taught by real estate and energy professionals throughout the country.

Auto-populating data from a green verification database to the local MLS will require buy-in and technical system build-out from the MLS. By using standard data languages and transfers, including the RESO data dictionary, establishing connectivity can be a straightforward process. In Portland, Oregon, the local MLS – Regional MLS (RMLS) – partnered with Earth Advantage to set up data auto-population. RMLS continues to be a leader in the industry for implementing RESO-compliant green fields and the success in Portland can be attributed, in part, to their commitment to providing their members with high quality data. More resources for MLSs are available on the CMLS Research website.

Resources for Home Appraisers

Real estate appraisers require resources that allow them to analyze market reaction to green home verifications and energy features. Professional appraisers need information in the following areas:

- Annual energy costs associated with the home, and whether those costs are modeled or from previous residents' utility bills.
- Financial investment amount the seller made into the home's energy features, and the expected lifetime of those features.
- How the home is different from seemingly comparable homes, either in terms of energy costs or valued energy features.

Most green verifications, sometimes in combination with a receipt of home improvements accomplished, will provide this type of information. By putting this information into the MLS or another database, appraisers can analyze comparable sales. The Appraisal Institute's Residential Green & Energy Efficient Addendum can also help with research, analysis, and clear reporting to bank/lender clients.

To assure a competent appraiser is selected to appraise a green verified home, use Appraised Value and Energy Efficiency: Getting It Right. This brochure provides language to send to lenders to ensure that appraisers are competent for the job.

Courses that can help appraisers prepare themselves to take on green verified homes are provided by the Appraisal Institute. Use the resources on their website to alert home appraisers in your area about training opportunities. Providing access to these courses at a discounted rate can help encourage attendance.

Opt-In and Opt-Out Language

Inclusion of either opt-in or opt-out data-sharing in the initial forms that customers sign with the program clauses may be helpful to ensure all parties are informed about data use. Below are examples of language used by various organizations to provide homeowners with information about how data can be used and gives homeowners the opportunity to either opt-in or opt-out of the program.

Efficiency Vermont's Terms and Conditions: Opt-Out Language:

HOME ENERGY RATING INFORMATION RELEASE: The enrollee hereby authorizes Efficiency Vermont to release the following Home Energy Rating System (HERS) 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 HERS Index Score; whether the home is labeled as Efficiency Vermont Certified, ENERGY STAR®, Efficiency Vermont Certified High Performance, LEED for Homes, National Green Building Standard, or Passive House; and the date that Efficiency Vermont criteria was met. Requests by enrollees to withhold such release will be honored, providing such notification is received prior to completion of HERS documentation. For all enrolled properties, Home Energy Rating and associated project documentation will be available to subsequent owners of the property upon request.

Energize Connecticut's Home Energy Solutions Release Language:

The U.S. Department of Energy's ("DOE's") Home Energy Score may be provided to you after your HES program services are completed and is similar to a vehicle's miles-per-gallon rating. The score, developed and administered by the DOE, allows you to compare the energy performance of your home to other homes nationwide. To calculate a Home Energy Score, the Companies, with your consent will be providing certain information relating to your residence to the DOE, including but not limited to street address, estimated energy usage, and certain physical characteristics of your home, such as square footage, number of rooms, appliances, and heating/cooling sources. Personal identifiers such as your name, email address, or utility account numbers will NOT be shared with the DOE or any third party. This information will only be used for purposes of analyzing and calculating a Home Energy Score.

Putting Your Home Energy Score on the Multiple Listing Services

Multiple Listing Services ("MLS") are increasingly adding "green fields" to their real estate databases to account for energy efficiency investments and/or third-party ratings, labels and scores. You are encouraged to grant permission to share your home's Score with your local MLS. If you make improvements to your home, you are encouraged to get your home rescored and share the latest Home Energy Score with the MLS.

If you opt out of sharing your Home Energy Score with the local MLS, you will not be eligible to receive a Home Energy Score during your HES assessment.

Please Check One:

- ☐ *The Companies have my authorization to share my Home Energy Score Report (full or in part) with local MLS(s) and authorize local MLS(s) to include my Home Energy Score Report (in full or in part) in listings for this home's address.*
- ☐ *The Companies do not have my authorization to share my Home Energy Score Report (in full or in part) with local MLS(s). By opting out, I understand that I am not eligible to have a Home Energy Score generated for my home as part of my HES assessment.*

Rhode Island National Grid's Opt-In Language:

The undersigned ("Customer") understands that The Narragansett Electric Company d/b/a National Grid ("National Grid") is collaborating with the United States Department of Energy ("DOE") to provide interested Customers who are homeowners with a Home Energy Score ("HES") report through the DOE's Home Energy Score Program ("Program"). Like a miles-per-gallon rating for a car, the Home Energy Score or HES provides an estimate of a home's energy use as well as associated costs and other information based on a standard assessment of its energy-related assets.

- ☐ *By checking this box, the Customer hereby consents and agrees to the disclosure of Customer Information (as defined below) by National Grid or by its contractor, Rise Engineering, a division of Thielsch Engineering, Inc. ("Contractor"), to the DOE. "Customer Information" will include Customer's address, description of home (e.g. year built, dimensions), and energy feature details (e.g. window types, heating and cooling system characteristics). Customer Information is needed for the DOE to (i) produce a HES report for the Customer's residence as set identified below ("Property") and (ii) deliver that report to the Customer. The Customer further understands that the DOE may publish or disclose analyses and aggregates using the Customer Information. Except as stated below, the DOE will not publish or disclose the Customer Information to any third parties and the DOE will not, directly or indirectly, identify the Customer in any publication or disclosure. Customers' name and energy consumption/utility bill information are not shared with DOE.*
- ☐ *By checking this box, the Customer hereby further consents and agrees to the inclusion of the Customer's HES report in future real estate listings and disclosure by the DOE of the HES report to any relevant multiple listing service, as well as to any intermediary databases serving to populate these listings, through accepted and secure methods of data transportation.*

Customer agrees to release, indemnify and hold harmless National Grid, the Contractor and National Grid's affiliates and its and their respective officers, directors, employees, agents, successors and assigns from any and all liability, claims, losses, damages or expenses arising out of, resulting from or in connection with (a) the disclosure of Customer Information by National Grid or by the Contractor to the DOE and (b) any use of the Customer Information or Customer's HES report as described hereunder.

SnuggScore Software's Opt-Out Language:

Energy efficiency upgrades can be listed on the Multiple Listing Service (MLS) to help your investment be valued during the home selling process. To the right is an example of a real estate MLS listing. The MLS is maintained by real estate professionals. It contains information on your home already available in public records. Your home's score can be added to your MLS listing.

Public disclosure of Home Energy Scores to real estate databases (Multiple Listing Services – MLS), Applications (ex: Realtor.com, Zillow), and through public portals is becoming a best practice for energy efficiency investments and/or third-party ratings, labels, and scores. Properties that receive a Home Energy Score are granting permission to share your home's Score with your local MLS, smart device applications (ex: Realtor.com) or through a public portal. If you make improvements to your home, you are encouraged to get your home rescored and share the latest Home Energy Score.

If you opt out, be sure to save your Home Energy Score Report electronically and in hard-copy form so you can share your score with realtors, appraisers, Scorers, and other professionals when making improvements or putting your home on the market.

- ☐ *I opt-out of providing my Home Energy Score.*

City of Portland, Oregon's Notification Language:

"Individual consent: in accordance with Portland City Code Chapter 17.108 (adopted by Ordinance N. 188413 and effective January 1, 2018), Home Energy Scores produced in Portland will be made publicly available through real estate listings. Thus, these scores and any associated information will not be treated as confidential. customer hereby consents to allow the Home Energy Score Report to be collected and stored in order to be disclosed through accepted and secure methods of data transportation, for the specific purpose of publishing it on a database, which will auto-populate or otherwise be uploaded to the Regional Multiple Listing Service (RMLS) and/or similar real estate listing services and be identifiable to homeowner's property on the listing service."

Examples from the Field: Integrating with Real Estate

The Northeast took a lead in researching and establishing access through developing opt-in and opt-out language for voluntary programs. Research from Vermont law school suggested that asset-related home data fits characteristically with data listed in public record, but programs would be most protected by establishing language obtaining consent from homeowners for sharing data. As a result, programs in Vermont, Connecticut, and Rhode Island established language allowing homeowners to either opt-in or opt-out of sharing their home energy information reports. Similarly, in Oregon Earth Advantage and Energy Trust added public release language to their new home certification agreements to enable easy transmission of data to the MLS.

The State of Connecticut offers home energy information on a voluntary basis through Energize Connecticut's Home Energy Solutions program. In January 2018, Energize Connecticut added standardized language to the contract granting HELIX access to relevant Home Energy Score information. Next steps include providing Home Energy Solutions contractors standard messaging information to help them explain to customers the value of participating in this way and engaging the Connecticut real estate industry.

Beyond establishing access to data, other pilot locations have focused heavily on providing trainings and conducting outreach to the real estate community. In California, partner organization Build It Green (BIG) saw an opening: if real estate professionals understand the importance and benefits of energy efficiency, then they can advise clients on how to incorporate efficiency into their home improvements. This helps homeowners save money for years to come and sets these agents apart in the marketplace. BIG partnered with the National Association of REALTORS® (NAR) to deliver NAR's GREEN Designation course freely to Southern California real estate professionals. BIG also established monthly peer-to-peer education meetings, where new GREEN Designees can ask questions, troubleshoot, role play, and learn new strategies and tips that help in the field. During the three-year Accelerator, BIG trained over 1,000 REALTORS®, 190 appraisers, and nearly 60 lenders.

Starting in 2010 the Colorado Energy Office (CEO) worked with all the MLS systems in Colorado to adopt a consistent set of green fields. Information and Real Estate Services (IRES), the MLS that serves Northern Colorado, was the first MLS in Colorado to adopt the green fields and by 2013 all but two of the systems adopted them.

The presence of a local rule in the City of Portland raised the stakes for engaging the real estate community, who needed to know exactly how to comply with the new rules. Earth Advantage provided tailored trainings for real estate agents, appraisers, lenders, energy assessors, and home builders to ensure everyone involved knew how to use the custom City of Portland Home Energy Score reports and Green Building Registry™ appropriately. Since 2015, Earth Advantage has trained over 6,000 real estate agents, appraisers, and brokers.

Elevate Energy also focused heavily on educating real estate professionals in the Chicagoland market. This was motivated, in part, by the existence of an ordinance from 1987 requiring utility costs in the MLS listing but with very low compliance or enforcement. By focusing on educating professionals on how to access this information and the value of doing so, Elevate Energy was able to spur greater compliance. Since 2015, Elevate Energy has trained over 200 real estate agents and appraisers on their eCompliance tool and over 50 REALTORS® for NAR's GREEN Designation.

Summary of Resources

Resources for Integrating Real Estate	
Resource	**Target Audience**
Home Energy Information Guide. *Council of Multiple Listing Services (CMLS).* ▶ Guide that helps real estate professionals and Multiple Listing Services make the value of efficiency investments visible to homeowners and buyers.	MLS managers and Real Estate Agents
Visible Value Blueprint. *Elevate Energy.* ▶ Seven-step blueprint to make energy efficiency improvements visible in the real estate market.	Energy Efficiency Leaders
Energy Efficiency for Real Estate Professionals Presentation. *U.S. Department of Energy.* ▶ Customizable presentation for explaining the value of energy efficiency to homebuyers and how to use home energy information effectively.	Real Estate Agent Associations
Home Energy Score for Real Estate Professionals Fact Sheet. *U.S. Department of Energy.* ▶ Short explainer about what the Home Energy Score is and how real estate professionals can use it with clients.	Real Estate Professionals
Appraised Value and Energy Efficiency: Getting It Right. *Home Performance Coalition.* ▶ Brochure designed to help homeowners secure an appraiser qualified in the valuation of energy efficient, high-performing homes.	Home Builders
Residential Green & Energy Efficient Addendum. *Appraisal Institute.* ▶ Tool for real estate appraisers to include home energy information in a home's appraisal.	Home Appraisers
Quick Start Guide: MLS Green Fields. *Council of Multiple Listing Services (CMLS).* ▶ Guidance on how to include RESO-compliant green fields on solar, energy efficiency, and appliances in the MLS.	MLS Managers

Part Three: Growing the Inventory of Home Energy Information

Note only is it important to foster systems in which reliable and standard data is accessible to the real estate community, but it is also necessary to increase the number of homes with verified and reliable energy information. Increasing the number of homes for which this information is available not only makes including the data in the real estate transaction more important to that industry, but also increases the awareness of energy-related issues for consumers.

Accelerator partners used many methods to grow the inventory of homes with energy information: incorporating standard labels into existing utility programs, combining datasets of information already available in the market, linking financing products to energy labels, and passing municipal ordinances. All methods require building awareness and demand for this type of information. If home buyers know that energy information exists, they can use that to better understand a home's expected costs and comfort. This section answers:

- What are ways to build demand for home energy information?
- How can financing products increase the number of homes with energy information?

This section also provides example language for regulatory mechanisms used in some of the pilot locations.

Awareness and Demand

Increasing the number of homes with energy information can itself increase awareness of home energy programs and home energy labels. But for the information to become useful and trusted, programs should employ complementary efforts outreaching to target audiences.

Often, the ideal home energy data consumer is a home buyer, so advertisements and articles on home listing websites and magazines may be a targeted way to approach that audience. Another way to reach homebuyers is through homebuyer trainings offered through the Federal Housing Authority (FHA) and nonprofit groups around the country. DOE put together a short education module that can be included in trainings provided to homebuyers. Bring these slides to local training providers and explain to them the benefits of providing this information to their class participants.

DOE's Better Buildings Residential Network provides a Social Media Toolkit and a Community Based Social Marketing Toolkit, which include examples for capitalizing on social media platforms and trusted community-based information sources for outreach.

Growing the Inventory through Existing Utility Programs

Through the statewide initiative Energize Connecticut, United Illuminating and Eversource were able to vastly increase the number of homes with home energy information by incorporating the Home Energy Score into the Home Energy Solutions program. As of 2018, Connecticut's program has resulted in more than 30,000 Home Energy Scores. In cases where the homeowner has also opted-in to provide real estate industry access, their Score report will also be available through NEEP's HELIX database.

In 2016, Energy Trust of Oregon's New Homes Program started requiring builders to release their home's Energy Performance Scores as public information. They now have over 7,000 homes with data to share through the Green Building Registry™.

Growing the Inventory through Combining Datasets

Being a relevant player in the real estate industry means providing data on large numbers of homes so that using home energy data becomes a regular part of the real estate transaction. While every home could have home energy information provided as useable data, the reality is most do not. Combining many reliable and standard data sources together will help bring more people to the table in utilizing this information. NEEP has formed agreements to incorporate Home Energy Score reports, HERS data, and Vermont solar data into HELIX. Build It Green focused on compiling vast solar data in California with various prominent green certification programs. Earth Advantage is incorporating different datasets in different local versions of the Green Building Registry™ including certifications, Home Energy Score, HERS and solar data.

Growing the Inventory through Linked Financing

For energy data and upgrade information to be successfully integrated into the real estate transaction, it must be accessible to home buyers and sellers. If cost barriers for accessing home energy data are too high, then the data is irrelevant and rarely included. For this reason, programs must function efficiently and keep costs low while providing standard and reliable home energy information. Similarly, if cost is a barrier to moving ahead with home energy upgrades, then the data does not provide actionable direction for homeowners to improve home performance. Home upgrade financing products can help make energy upgrades accessible to homeowners.

When approaching local financers and mortgage lenders to provide financing options for home energy upgrades, be prepared with information about how that institution can benefit by factoring energy information into their lending practices. The Accelerator's Fact Sheet for Lenders summarizes this information. Green banks are an increasingly popular mechanism nationwide to provide this type of financing. The Connecticut Green Bank requires that customers complete an energy assessment to quality for solar incentives, and one of the major mechanisms they are using is the Home Energy Score.

Fannie Mae and Freddie Mac both started the year executing their plans to meet "Duty to Serve" requirements for underserved markets, and both plans included strategies to increase financing for home energy efficiency upgrades. These plans outline strategies each organization will undertake to address challenges to energy efficiency financing. Local mortgage lenders should engage with them to determine how to offer home energy financing products.

Addressing the burden of high energy costs through energy efficiency improvements can lower the total cost of homeownership and help preserve housing affordability. The Federal Housing Administration (FHA)'s Energy Efficient Homes Policy is based on this rationale and uses verified home energy information sources to qualify. Fannie Mae's HomeStyle® Energy Mortgage offers certain underwriting and financing flexibilities for financing

LOCAL GOVERNMENT POLICY SPOTLIGHT:
ANDRIA JACOB
CITY OF PORTLAND, OR

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Portland can achieve its energy goals only by significantly accelerating energy efficiency and renewable energy activities in the residential sector. Scores, labels, and ratings are a regular part of how we communicate information. We consult miles-per-gallon ratings on cars, nutrition labels on food, and Energy Guide labels on appliances to make informed consumer decisions. Home Energy Score similarly conveys previously unknown but critical information to both buyers and sellers of homes, which helps lower energy bills, increase housing affordability, and make Portland homes more comfortable and livable. Now, every home in Portland is required to include the Home Energy Score and Report in real estate listings, resulting in thousands of new reports since January 2018.

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energy, water and home resiliency upgrades at purchase or refinance. Approach local banks, credit unions, and other mortgage financers about the opportunity to expand their product offering and serve more buyers and homeowners.

For more information, these options are described in greater detail in NASEO's resource, "Home Energy Labeling: A Guide for State and Local Governments," which will be released in full in late 2018.

Growing the Inventory through Policy

Local policies also have potential to increase home energy information in the real estate market. For example, home energy data disclosure ordinances can produce a large volume of data for a home energy database. Official guidance and ordinances can help local governments achieve goals to improve local housing stock, better target incentive programs, and reduce energy use and associated emissions.

Note, however, if stakeholders are not properly engaged, regulation can backfire by alienating real estate professionals who may perceive such rules as an additional burden to home sellers. Some regions have pursued ordinances to implement home energy labeling policies, only to face significant backlash from real estate professionals afraid such a policy will slow sales and subject consumers to bureaucratic hurdles. The real estate community should be engaged in the policy design discussions.

Municipal Ordinance Language

In 1987 Chicago, Illinois passed an ordinance requiring utility bill information to be included in home listings. As of publication, two cities have passed ordinances requiring a Home Energy Score as part of the real estate transaction. In 2015, Berkeley, California requires a Home Energy Score at a home's time of sale, with the potential for one-year deferral. Similarly, since 2018 the City of Portland, Oregon has required a Home Energy Score at a home's time of listing on the local MLS. These ordinances can be found at the links below.

- Ordinance in Berkeley, California
- Ordinance in Portland, Oregon
- Ordinance in Chicago, Illinois

Examples from the Field: Growing the Inventory

On December 14, 2016 the City of Portland, Oregon, adopted a rule requiring home sellers to obtain and disclose the city's Home Energy Score report at time of listing on the MLS. The city's report provides an estimate of the home's energy use, associated costs, carbon emissions, recommended improvements, and a list of local resources. The policy went into effect on January 1, 2018 and in the first six months of implementation independent Assessors created over 5,000 Scores. Earth Advantage trained more than 130 Assessors to provide Scores, so the City of Portland could ensure that a lack of Assessors would not create a restraint on the real estate market.

Earth Advantage now also participates in a working group with lenders and local banks to coordinate opportunities for financing based on home energy information. Earth Advantage engages in these efforts to provide home sellers and buyers more options to improve homes, particularly if they score low and can reduce energy costs. The Green Building Registry™ makes possible a high listing compliance rate. To increase compliance, the city is focusing on making educational resources available in more languages and pursuing more training initiatives.

In the City of Chicago, there has been an ordinance since 1987 requiring disclosure of utility bills when residential properties are sold or leased. However, the process for tracking down this information was often time-consuming and frustrating, and as a result compliance with this rule was low. In July 2013, Chicagoland's MLS provider Midwest Real Estate Data, LLC (MRED), the City of Chicago, and Elevate Energy worked together to automate the process, making it possible for agents to get both gas and electricity cost data with just a few clicks. Elevate Energy created eCompliance, a tool accessed through its MyHomeEQ web application, which allows utility costs to be automatically linked to a home's listing. These systems have helped increased compliance by 30% since 2014.

There are options to growing the market beyond local rules, such as including standard home energy information collection methodologies in voluntary programs. For instance, the statewide program Energize Connecticut includes Home Energy Scores as part of its standard assessment, resulting in over 30,000 Scores since 2015. In Colorado, new home construction already had a relatively high utilization rate of HERS ratings, but the Colorado Energy Office (CEO) took further steps to promote HERS ratings for new construction. To facilitate the availability of data for existing homes, CEO became a Home Energy Score partner in 2015 and established a network of Home Energy Score assessors who could provide scores across much of the state. Throughout the three-year Accelerator, CEO's efforts resulted in training 60 assessors who produced over 2,300 Home Energy Scores.

Summary of Resources

Resources for Growing the Inventory	
Resource	**Target Audience**
Home Energy Labeling: A Guide for State and Local Governments. *National Association of State Energy Officials (NASEO).* ▶ Guidance tool and web resource for state and local governments seeking to learn from others about how to start home energy labeling programs.	State & Local Governments
What Does My Score Mean? Fact Sheet. *U.S. Department of Energy.* ▶ Resource for understanding what a home's Home Energy Score means and how to use the information provided in the report.	Home Energy Score Recipients
Training on Home Energy Score for First-Time Homebuyers. *U.S. Department of Energy.* ▶ Short presentation or training insert on Home Energy Score for FHA's first-time homebuyer trainings.	Homebuyers
Social Media Toolkit. *U.S. Department of Energy.* ▶ Guidance for residential energy efficiency programs learning how to engage potential customers through social media.	Energy Efficiency Leaders
Community Based Social Marketing Toolkit. *U.S. Department of Energy.* ▶ Toolkit to strengthen residential energy efficiency program outreach and marketing efforts through data-driven, tailored activities that change behaviors.	Energy Efficiency Leaders
How Lenders Can Use and Benefit from Home Energy Information. *Elevate Energy.* ▶ Factsheet that helps lenders better understand the value of including home energy information in their financing products.	Mortgage Lenders

Better
Buildings®
U.S. DEPARTMENT OF ENERGY