
Legislative Report

Working Group
on Building
Energy
Disclosure

December 2011

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I. Introduction

Pursuant to H.56 §20d, the Vermont Energy Act of 2011, this working group on building energy disclosure was created to study whether and how to require disclosure of the energy efficiency of commercial and residential buildings in order to make data on building energy performance visible in the marketplace for real property and to inform the choices of those who may purchase or rent such property.

Pursuant to H.56 §20d(e), the Working Group on Building Energy Disclosure (Working Group) was responsible for submitting this report to the general assembly on or before December 15, 2011 with its recommendation on whether the state of Vermont should adopt requirements on disclosure of building energy performance and recommended legislation on such disclosure if the general assembly were to choose to adopt such requirements.

Membership of the Working Group included:

- 1) A member of the senate appointed by the committee on committees (Sen. Robert M. Hartwell)
- 2) A member of the house appointed by the speaker of the house (Rep. Margaret Cheney)
**Working Group Co-Chair*
- 3) Commissioner of the Department of Public Service designee (Kelly Launder, Assistant Director, Planning and Energy Resources Division)
- 4) The Secretary of the Agency of Commerce and Community Development designee (Jennifer Hollar)
- 5) A real estate broker licensed in Vermont appointed by the Governor from a list of three names recommended by the Vermont Association of Realtors (Eric S. Phaneuf, Esq., Sterling Realty)
- 6) A representative of an entity appointed pursuant to 30 V.S.A. § 209(d)(2) to deliver energy efficiency services to multiple utility service territories, designated by the entity (George Twigg, Deputy Policy Director, Efficiency Vermont) **Working Group Co-Chair*
- 7) A real estate appraiser licensed in Vermont appointed by the Governor (Ami Milne-Allen, President, Vermont Chapter of the Appraisal Institute)
- 8) A building construction contractor appointed by the Governor (Richard Gardner, Gardner and Gardner Realtors)
- 9) A representative of the Vermont Homebuilders and Remodelers Association designated by the Association (Ward Smyth, Turtle Creek Builders)
- 10) A person who is an accredited provider of energy rating services under the process adopted by the Department of Public Service pursuant to 21 V.S.A. § 267, appointed by the Governor (Emily Levin, Efficiency Vermont)

- 11) A person with expertise in energy policy appointed by the Governor (Richard Faesy, Energy Futures Group)
- 12) A person who is an active member of a local energy committee that is part of the Vermont energy and climate action network, appointed by the Governor from a list of three names recommended by that network (Jeffrey W. Forward, Forward Thinking Consultants, LLC)
- 13) A representative of a financial institution appointed by the Governor from a list of three names submitted by the Vermont Bankers Association and the Association of Vermont Credit Unions (Steve Post, CEO, Vermont State Employees Credit Union)
- 14) A representative of the Vermont Housing Finance Agency designated by the Agency (Sarah Carpenter, Director, Vermont Housing Finance Agency)
- 15) A member of the Vermont Bar Association with experience in the conveyance of real property designated by the Association (William Dakin, Esq., Dakin and Benelli, P.C.)
- 16) A representative of the heating service industry designated by the Vermont Fuel Dealers Association (Bob Hedden, Oilheat Associates)

For the purpose of the Working Group's study of the issues identified in H.56 §20d(d) and the preparation of its recommendation pursuant to H.56 §20d(e) on whether the state should adopt requirements on building energy performance, the Working Group had the administrative, technical, and legal assistance of the Department of Public Service and the Agency of Commerce and Community Development. For the purpose of scheduling meetings and preparing its recommended legislation pursuant to H.56 §20d(e), the Working Group also had the assistance of the Office of Legislative Council.

The Working Group had five meetings on the following dates:

- August 12, 2011
- September 19, 2011
- October 27, 2011
- November 17, 2011
- December 8, 2011

The following report was adopted by the Working Group at its December 8, 2011, meeting by a vote of 15-0, with one member absent (Hartwell). Pursuant to the actions taken by the committee (described in the next section), attached to this report are two versions of draft legislation: first, legislation that requires disclosure of energy performance by property sellers through use of a tool with no cost to the end user; and second, legislation that would require, in addition to seller disclosure, completion of an additional, more detailed energy assessment by the buyer.

II. "Whether there should be requirements to disclose building energy performance"

At the conclusion of its fourth meeting on 11/17/11, the Building Energy Disclosure Working Group took a straw poll to assess support for various types of disclosure requirements. The results of that straw poll found: 7 members in favor of a two-tier approach requiring disclosure by the property seller as well as completion of an audit by the property buyer; 6 members in favor of a single-tier approach, requiring disclosure by the property seller only; and 2 members opposing any disclosure requirements by any party. One member was absent (Hartwell).

On 12/8/11, the Working Group formally voted to support a requirement that property sellers provide a disclosure of building energy performance, delivered through a mechanism such as an online tool with no cost to the end user, and tracked through a database of a form to be determined. The vote on this item was 12-0 in support, with 2 abstentions (Lauder and Hollar) and 2 absences (Hartwell and Milne-Allen). Lauder and Hollar abstained because the database issue was new to the discussion and the administration had not yet had an opportunity to review it.

The Working Group also formally voted to adopt the draft report, subject to the following conditions: (1) that the report would be amended per discussion at that day's meeting and circulated to Working Group members for review; (2) that members would have an opportunity to post comments/positions in the table below; and (3) if at least five Working Group members requested, a subsequent meeting would be held prior to finalization and submittal of the report. The vote on this item was 14-0 in support, with 2 absences (Hartwell and Milne-Allen).

Finally, the working group voted to include, for informational purposes only, draft legislation that includes provisions requiring both disclosure by the seller and completion of an audit by the buyer. The vote on this item was 10-0, with two abstentions (Hollar and Lauder) and four absences (Hartwell, Milne-Allen, Dakin, and Post).

The table on the next page summarizes the positions of the Working Group members on specific issues. Its purpose is to provide information on the views of each Working Group member; it is not a record of any of the votes described above

Name	Require Seller Disclosure	Require Buyer Assessment	Require no Disclosure	Require Commercial Disclosure	Comments
Ami Milne Allen	X	X		X	<ul style="list-style-type: none"> I think we need disclosure for the buyer and the seller and we need to include both commercial and residential if we are going to have a successful program with total market buy in.
Sarah Carpenter	X			X	<ul style="list-style-type: none"> Support seller disclosure based on free or low-cost rating tool. More work on the commercial disclosure is needed. More work on residential rentals is needed.
*Rep. Margaret Cheney	X	X		X	<ul style="list-style-type: none"> Two-step disclosure ensures that potential buyers will have basic energy information for comparison purposes (at no cost to the seller). A second, more comprehensive step at point of sale provides valuable information to lenders and helps pinpoint specific improvements for buyers. Further work is needed on best ways to address rental, commercial, and public property, as well as subsidies or incentives.
Bill Dakin	X				<ul style="list-style-type: none"> Seller disclosure can be required provided that the disclosure software is available at no cost to the seller and has a meaningful result. Disclosure should apply to all residential and condo units, up to 4 family unit structures. Commercial property disclosure considerations have not been fully evaluated. In addition I would propose a state income tax credit of up to \$10,000 for each homeowner who complies with the energy disclosure recommendations, whether upon sale of a property or at anytime the homeowner chooses to have an energy audit.
Richard Faesy	X	X		X	<ul style="list-style-type: none"> Buyer and seller disclosure would move us towards statewide goals most rapidly, but doing either is a great first step. Examine mortgage financing options to help facilitate paying for improvements at time of purchase. Commercial disclosure deserves more input from affected stakeholders to define process and tools.
Jeff Forward	X	X		X	<ul style="list-style-type: none"> While I fully support the idea of required annual benchmarking for commercial properties, I believe this concept needs to be phased in over time. Annual benchmarking would simplify the need for energy use disclosure at the time of sale or lease. I feel that Efficiency Vermont should be given the resources to do this for all state and local public buildings as soon as possible regardless of whether there is a mandate to do so for all buildings.
Richard	X			X	<ul style="list-style-type: none"> The disclosure for sellers should be as close to <u>free</u> as possible.

Gardner					<ul style="list-style-type: none"> • The “life” of the disclosure should last up to five years. • Having a place to easily access the data once disclosed will be very important to help move Vermont in a positive direction. • More work on the commercial disclosure is needed. • More work on residential rentals is needed.
Sen. Robert H. Hartwell			X		<ul style="list-style-type: none"> • Opposed to any government-required mandates or possible intrusion of privacy (as explained in separate statement provided to Working Group on 12/22/11)
Robert Hedden	X			X	<ul style="list-style-type: none"> • Commercial disclosure required when offered for sale or lease to a new tenant, not annually. Only Vermont State and municipal buildings would be done annually.
Jennifer Hollar	X				<ul style="list-style-type: none"> • Support seller disclosure based on free or low-cost rating tool. • Prefer voluntary buyer audit. Cost impact to low and moderate-income buyers of concern (or cost and source of subsidy). • Commercial disclosure not considered by group in enough detail to support.
Kelly Launder	X			See comments	<ul style="list-style-type: none"> • The seller disclosure tool should be free to the user and simple to complete. The cost to the state for purchasing and maintaining the tool should be taken into consideration and a source of funds should be identified for these costs. The accuracy of any tool used for the disclosure should also be analyzed. Although DPS is generally supportive of both a residential and commercial seller disclosure, more analysis is needed on the tools and process to be used for commercial buildings as the Working Group focused mostly on residential. • DPS is not in favor of the buyer disclosure requirement due to the cost barrier, possibility of inconsistency with the seller disclosure score, the confusion that may create (which one is “right”), and the uncertain usefulness of this further assessment.
Emily Levin	X	X		X	<ul style="list-style-type: none"> • I support the buyer assessment because it provides actionable information that positions a buyer to complete energy improvements and roll the cost into a mortgage. On the commercial side, Vermont should explore periodic benchmarking consistent with best-practice in other states. Requiring regular benchmarking of state and municipal buildings would show leadership and commitment to saving taxpayers money on building operations.
Eric Phaneuf	X			X	<ul style="list-style-type: none"> • Energy, especially heating fuel expense, is a material cost of home ownership. It would seem prudent to factor monthly energy expenses into mortgage underwriting to capture “true” affordability. Support disclosure in commercial

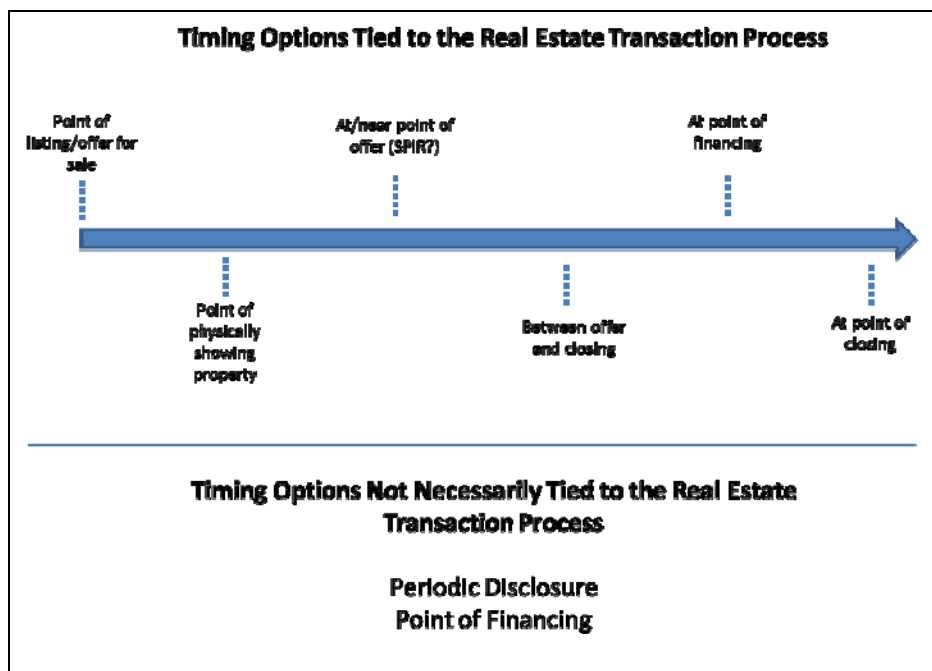
					sector when offered for sale, and every 5 yrs. Support Vermont State and municipal buildings being done more regularly, possibly annually.
Steve Post	X				<ul style="list-style-type: none"> Support creation of a standardized energy performance metric for use by Vermont property owners which can be completed at no cost using information that is not too technical in nature. Support a property owner having the obligation to disclose the results of the performance measurement tool as applied to his or her property in advance of accepting an offer to purchase.
Ward A. Smyth	X	X		X	<ul style="list-style-type: none"> While I strongly endorse our “no-cost” initial approach performed by the Seller; I also feel we should include an increased level of disclosure stringency funded by the Buyer. As a member of the Technical Subgroup who initiated the limited \$0-300 budget, I feel there are sufficient assay systems available to further inform the Buyer as to what actions they may take to improve their new property! I do not feel this will be able to include “blower door” testing, nor should it include a BPI-level of certification to service. I envision a computerized program that could be implemented (with minimal training) as an additional service by a Realtor, builder, home inspector, etc.
*George Twigg	X	X		X	<ul style="list-style-type: none"> If requiring buyer disclosure, need to address low-income subsidy for costs. For commercial disclosure, more work seems needed to define tool/process. Would like to see consideration for treatment of renters.

* Working Group co-chair

III. "To whom disclosure should be made" and "when"

The Working Group discussed both of these issues, which were explored in more detail by a subgroup formed for this purpose (members: Ami Milne-Allen, Jeff Forward, Rich Gardner, Steve Post, Eric Phaneuf, George Twigg). Particular attention was paid to how each timing option could affect buyers, sellers, and the typical flow of the real estate transaction process. This subgroup focused primarily on residential transactions.

With regard to disclosure timing ("when"), the subgroup presented the following options, which were discussed by the full Working Group:



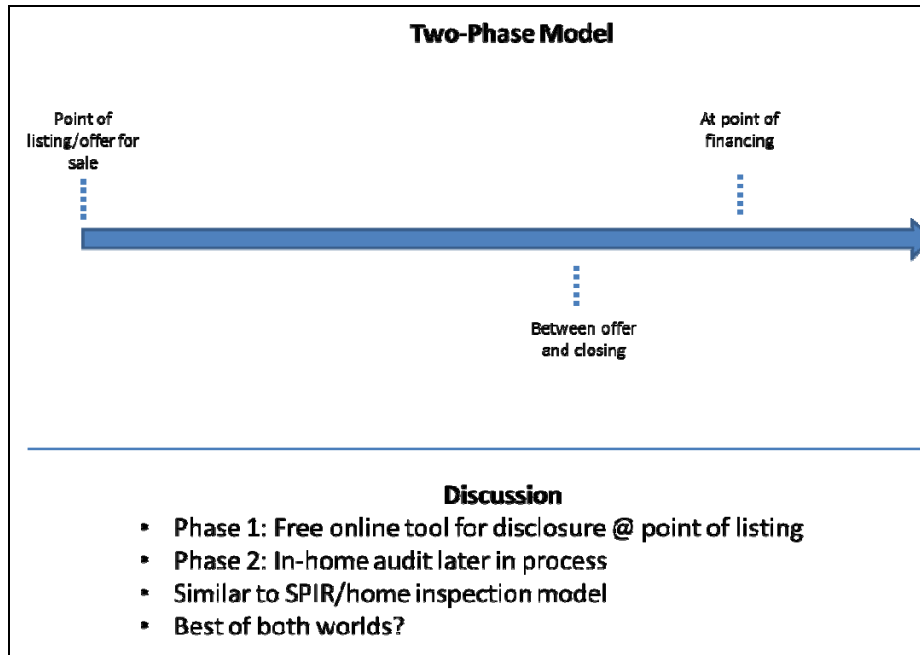
The Working Group found that each option has advantages and disadvantages. It was generally agreed that the earlier in the real estate sales process the disclosure takes place, the more equipped buyers would be to compare the energy performance of all properties being considered. Delaying disclosure until the point of closing, on the other hand, limits the value of the disclosure because it cannot be used for comparison shopping purposes. Regardless of the value buyers might find in early disclosure, some members of the Working Group felt that early disclosure, if paid for by the seller, did not strike the right balance between the parties' respective costs and potential benefits.

Two options not necessarily tied to the real estate transaction process were also discussed: disclosure at time of financing (purchase or refinancing), and periodic disclosure (e.g., every 5

years, or during grand list reassessment). The latter option has the advantage of not having to burden the already-complex real estate transaction process. Despite the appeal of its simplicity and ubiquity, members of the Working Group were concerned about the prospects of such a broad requirement winning public support. Some members of the Working Group also felt that this option would eliminate some of the potential benefits of linking disclosure to the transaction process, such as the buyer rolling the cost of improvements into long-term financing. Furthermore, unless there were a phasing mechanism, an “all properties” approach could face challenges ramping up the infrastructure necessary for such an option to succeed.

Tying disclosure to financing was attractive to some members of the Working Group because it could apply to refinancing as well as purchases and therefore accelerate the pace of disclosures. Additionally, tying disclosure to the financing qualification process could enable the rolling of energy efficiency upgrades into the primary home mortgage, enable greater adoption of specialty loan products such as Energy Improvement Mortgages, enable financial institutions to factor energy costs into underwriting criteria, and equip appraisers with the information necessary to factor energy performance into the valuation of property. The Working Group found that further investigation was required with regard to the ability of Vermont financial institutions to take energy performance into account as a factor for underwriting.

The Working Group also discussed a hybrid, two-step approach. This approach includes a free assessment through an on-line tool that could be performed by the seller and disclosed early in the process, followed by a more detailed assessment performed by a trained third party paid for by the buyer. This third-party assessment would verify the seller’s simple assessment and include a scope of work with recommendations for improving the energy efficiency of the property.



The hybrid approach has the benefit of enabling comparison shopping through early disclosure, while placing the requirement for a more thorough assessment on the buyer. The hybrid model is somewhat comparable to other types of property disclosure, in which an initial disclosure is provided by the seller (in the form of the seller property information report, or SPIR), followed by a more detailed property inspection paid for by the buyer. If the buyer’s energy assessment is performed by the same service provider as the buyer’s property inspection, there could be an opportunity for cost savings and efficiency.

Regardless of the time chosen for disclosure, if the timing is tied to the sales process, the Working Group felt it was important that all properties be treated equally. That is, homes for sale by owner should face the same requirements as homes represented by licensed real estate sales professionals. While the earliest point of disclosure for represented sales could be the point of listing in the multiple listing service (MLS), there is no such corollary in the for-sale-by-owner arena (“unrepresented”). Some unrepresented owners advertise on sites such as Picket Fence Previews or Craig’s List; others advertise in newspapers, or simply put a sign out in their front yard. The Working Group concluded that the earliest point in the sales process, shared by both represented and unrepresented owners, is the “point of physically showing the property.” Therefore the Working Group settled on the time of first showing the property to a particular buyer as the time for the disclosure required by the seller. It should be noted that the vast majority of residential real estate transactions are listed through the MLS process.

In considering the question of “to whom” disclosure should be made, the Working Group identified the following parties as potential recipients of the energy information disclosed – assuming disclosure is required:

- **Buyers:** Disclosure would benefit buyers by enabling them to compare the energy performance of different properties, and to consider energy costs when calculating how much house they can afford.
- **Sellers:** Disclosure would provide sellers with a tool for demonstrating to the marketplace the value of any energy efficiency improvements they have made, thereby protecting that investment in particular, and enhancing the value of efficiency in general.
- **Appraisers:** Disclosure of energy performance would help appraisers assign value to energy efficiency. The inclusion of a consistent metric of energy performance, via the disclosure and rating process, would enable appraisers to perform data-driven analysis of the impact of energy efficiency on the value of real estate transactions.
- **Lenders:** Disclosure would enable lenders to potentially take energy performance into account as part of their underwriting criteria, subject to state and federal regulatory limitations. Further investigation is warranted regarding the potential for lending institutions to adopt underwriting standards that take into consideration a property’s energy-related operating costs, and whether such standards should be required. The state may be able to impose such a requirement on state-chartered banks, state-chartered credit unions, and “licensed lenders,” but not on federally chartered banks and credit unions.
- **General public:** If disclosure information is made available to potential buyers, it would potentially be available to the general public as well (especially if disclosure takes place early in the process, is listed on MLS, etc.). This could help to promote public awareness of building energy performance.

IV. "What types of building energy ratings or audits should be employed"

A technical subgroup (members: Richard Faesy, Bob Hedden, Emily Levin, Ward Smyth) formed to examine the types of building ratings or audits that should be employed as part of a building energy disclosure process. The objectives for the subgroup were to:

- Develop core guiding principles for rating selection
- Develop a matrix comparing audit/rating options
- Prioritize options based on core principles to provide preliminary recommendations to the full working group

In order to guide its work, the technical subgroup began by articulating a set of core principles for energy performance disclosure. The subgroup presented these principles to the full Working Group at a meeting on September 19, 2011. The Working Group voted to endorse the core principles as presented:

1. Reasonable cost to end user (\$0-300)
2. Presented as a single number or letter to allow market comparisons
3. Accurate: Results are repeatable and predictable, and the tool predicts energy use close to how an average occupant would use the house
4. Provides recommendations for upgrades to focus on high-priority areas
5. Enables a smooth process to pursue upgrades based on rating, with an optional link to home inspection
6. Compatible with HERS ratings that are currently produced for new ENERGY STAR Homes in Vermont, or if different than HERS, can be translated or linked to HERS
7. Provides a tiered on-ramp with the ability to drill deeper if desired for improved accuracy
8. Ability to customize and maintain the tool for Vermont, but ratings can be used and understood outside of Vermont
9. Residential ratings: Asset rating based on features of home rather than occupant behavior
10. Commercial/Institutional ratings: Operational rating based on occupant behavior and actual energy usage

The technical subgroup then completed a detailed review of available rating software and energy performance disclosure scoring options. Based on this review, the subgroup concluded that different approaches are needed for residential and commercial markets.

Residential Disclosure

The technical subgroup recommended a two-stage approach for residential disclosure, which, as noted in Section II, had the support of some, but not all, members of the full Working Group:

1. Seller disclosure: Energy performance disclosure provided by seller using a free or low-cost web-based tool at time of listing or physically showing the property.

2. Buyer assessment: Energy assessment and work scope for improvements obtained by the buyer from a qualified energy assessor.

The technical subgroup noted that the decision about the format of the energy disclosure score can and should be made separately and distinctly from the decision about which software tools should be used to produce the seller disclosure and buyer assessment.

Regarding the format of the energy disclosure score, the Working Group recommends that legislation specify key criteria that the score must meet, rather than specify one particular score, such as Oregon's Energy Performance Score (EPS) or the Department of Energy Home Energy Score (HES). The Working Group recommends the following criteria for the score:

- Produces estimate of site energy MMBtu based on typical occupancy and weather
- Presents as a single number with a visual scale for context
- Provides comparisons to other homes (e.g., average Vermont existing home, code Vermont home, zero-energy home)
- Shows house square footage and allows for normalization based on house size (e.g., MMBtu/sq. ft.)
- Does not include a carbon scale
- Includes estimated annual energy cost

Regarding the choice of software tools, the Working Group again recommends that the legislation specify key criteria rather than specify one particular software tool over another. The subgroup completed a detailed review of seven software options, summarized in the attached matrix (Appendix 1). The software tools range in detail from simple web-based tools to detailed energy audit tools requiring in-home data collection and entry of hundreds of inputs (Appendix 2). The review included test-driving the software with sample Vermont projects, wherever possible.

The Working Group recommends that the following criteria be used to inform selection of software for the seller disclosure:

- Web-based tool that can be completed by the seller
- Free or low-cost to the end user
- Asset-based¹
- Uses simplified inputs
- Produces an estimated energy disclosure score
- Generates general energy-improvement recommendations and links to energy-improvement contractors

¹ An "asset-based" rating considers the features of the home under typical weather and occupancy patterns, as opposed to an "operations-based" rating that merely examines actual energy use, regardless of the house's energy-related features.

- Produces a brief report that can be printed and provided to potential buyers, including the inputs used in generating the rating and the resulting outputs (i.e., energy disclosure score and annual energy cost)
- Technical support is available (e.g., from trained Realtor or Efficiency Vermont Customer Support)

Tools that may be suitable for the seller disclosure include EnergySavvy and the Conservation Services Group's (CSG) EnergyMeasure View.

Whether assessment is required or voluntary, the Working Group recommends that the following criteria be used to inform selection of software and processes for any buyer assessment costing \$300 or less:

- Designed to be completed by a certified assessor (e.g., Home Performance with ENERGY STAR contractor, Vermont Gas auditor, Weatherization Assistance Program auditor, HERS Rater, National Oilheat Research Alliance Certified Energy Conservation Analyst, or certified home inspector)
- Collects more detailed inputs (potentially including blower door house air leakage test and combustion efficiency)
- Includes health and safety testing
- Provides a list of recommendations and a work scope with estimated cost for energy improvements, suitable for mortgage financing
- Produces an energy disclosure score

Tools that may be suitable for the buyer assessment include Earth Advantage's Energy Performance Score software and CSG's EnergyMeasure Home.

While the technical subgroup examined other rating software, there were issues with each option that led the subgroup to not recommend its use at this time. These software tools and the reasons against recommending them are summarized below:

- EPA Home Energy Yardstick: This tool produces an operational rating based on utility bills, so does not meet the "asset-based" principle.
- DOE's Home Energy Score: At the time of subgroup review, the tool was in pilot phase and had technical accuracy issues. Additionally, the tool requires that a trained and certified assessor conduct the inspection and scoring, which would preclude its use for free or low-cost seller disclosure. There were also concerns about DOE's willingness to modify and customize the tool for Vermont's unique characteristics (e.g., oil and wood heat, hydronic systems, little cooling). The subgroup also noted that the 1-10 scoring scale is likely to change annually as more data populates the tool, so that an 8 in 2012 may not be the same as an 8 in 2015. The subgroup recommends that HES be considered in the future as it is modified and improved, especially if it becomes widely adopted across the nation and thereby gains traction with mortgage lenders and appraisers.

- Home Energy Rating System (HERS): While HERS has the widest recognition as a means of rating (primarily new) homes for the past 25 years, the technical subgroup recognized some shortcomings for its use in the disclosure process. Rater inputs are extensive, leading to a time-consuming and costly assessment and data-entry process that would violate the principle of no/low-cost for the seller disclosure and the \$300 threshold for the buyer assessment.² The Working Group recognized the value of HERS in the marketplace and suggested a means to have any system selected relate to HERS to allow some level of comparability. While there will never be a one-to-one correlation between a more simplified tool and HERS, a process of comparability could be developed to help the marketplace better understand the relationship between HERS and the selected tools, especially if HERS continues to be the rating system of choice for the Efficiency Vermont residential new construction program. One approach would be to have HERS generate the seller disclosure rating with every home rated, which would be relatively simple. On the other hand, the seller disclosure rating could not generate an accurate HERS score.

Commercial Disclosure

The Working Group also examined appropriate tools and approaches for commercial buildings. While there was acknowledgement from the Working Group that the threshold between residential and commercial buildings could be drawn in any number of different places, they recommended that residential buildings up through four units be rated with the designated residential tool and that all other non-residential buildings and buildings of five and more residential units be rated with the commercial building rating tool. Individual residential condominium units could also be rated with the residential tool.

Rating tools for commercial buildings are much more limited in availability than residential rating tools. At this point in time, and until DOE or others develop an asset-based rating tool, the most prevalent tool available is EPA's Portfolio Manager. This operational "benchmarking" tool compares actual total energy use per square foot (with some adjustments) to other similar building types (e.g., hospital, office building, school, etc.) and provides a score of 0-100 that represents the relative ranking against all the other similar buildings in DOE's database. This percentile score is also the means to label a building as "ENERGY STAR" if it scores in the top 25% of all similar buildings with a score of 75 or higher.

Portfolio Manager requires that all energy bills and some other building characteristics data be entered onto EPA's website in order to generate the building score. DOE is currently developing a "data warehouse" to allow a state or municipality to collect and report on all of the Portfolio Manager data in a repository of non-residential building rating information. In order to allow the marketplace to review and act on this building energy information, the subgroup recommends that this information be made publicly available.

² Estimated HERS rating costs are between \$800 and \$1000.

An asset-based rating is currently under development by DOE that could provide an alternative to Portfolio Manager. As this becomes available, the DPS should examine the pros and cons of each system to determine the best approach for Vermont, weighing all of the costs and benefits associated with each. While the operational-based Portfolio Manager system looks at the ultimate measure of a building's energy efficiency (i.e., its actual energy consumption), this may or may not serve as the best indicator of the relative energy efficiency of the building based on occupancy and usage patterns that could easily change from year to year. An asset-based rating system would reward or penalize the energy features of the building, independent of how the occupants chose to operate it. There are benefits and downsides to each approach, but until an asset-based commercial system becomes available, Portfolio Manager is the only viable commercial tool.

The timing of disclosure on commercial buildings could occur at time of sale, on a periodic schedule, or both. Some guidance on commercial buildings and the timing of when disclosure could take place is included in the table on page 22.

Disclosure Tool Selection Process

For residential disclosure, the Working Group recommends that the DPS initiate a rating tool RFP process based on the principles and criteria suggested above. In addition, the selected tool should be made available online, either at the DPS site or another designated site, such as www.encyvermont.com. While the Working Group recommends a fully web-based system, a paper form could work if combined with an optical scanning process that enables easy uploading of the house data onto the program website.

On the commercial side, the Working Group recommends checking with DOE to understand progress on the asset-based rating tool, then evaluating the pros and cons of an asset-based approach versus Portfolio Manager. If a periodic benchmarking approach to commercial disclosure is adopted, then an operational rating using Portfolio Manager may be preferable. If disclosure is at time-of-sale, then an asset rating tool may be more appropriate.

V. "Requirements for building energy performance that have been adopted in other jurisdictions"

Overview

Energy audits have been available in the U.S. for decades. However, the concept of mandatory energy audits is a fairly new one, with a handful of states and cities requiring audits as a part of the buy/sell transaction or as a regulation based on age of the building for public disclosure purposes. Appendix 6 provides summary charts of disclosure policies in the United States.

More information on many of these initiatives can be found at:
<http://www.buildingrating.org/content/spotlight-policy-briefs-0>.

Building Energy Disclosure Laws in the U.S. and Canada

Austin, TX

Perhaps the earliest Audit and Disclosure ordinance passed in the U.S. with the most actual experience and outcomes is the "Energy Conservation Audit and Disclosure" (ECAD) ordinance passed in June, 2008, in the city of Austin, Texas.

What does the ordinance require?

The ordinance requires building energy rating and disclosure for nonresidential facilities, with mandatory energy audits for homes and apartment complexes. Some apartment complexes are required to undergo energy retrofits. All Austin commercial buildings that receive electricity from Austin Energy must have an Energy Star Portfolio Manager building rating by June 1, 2011.

The city of Austin's goal for the first year ending mid-2010 was for 25% of homes sold to implement energy improvements before sale or within 12 months after sale. For the second year ending mid-2011, the goal was set at 45% of homes. Austin Energy tracked actual rates in the first year at 12% and for the second year at 7%. In the first program year, 9,549 homes were sold, 4,862 homes had been audited, and 3,999 were determined to be exempt. Of homes sold in the first year, 712 had implemented energy improvements and, as of May 2011, 271 homes had received improvements in the second year.

California

California passed Assembly Bill 1103 last year with some aspects deferred until 2012.

What does the legislation require?

Requires owners of non-residential buildings over 1,000 square feet to rate their buildings using the Energy Star Portfolio Manager online software tool. They must disclose a Statement of Energy Performance to the California Energy Commission (CEC) as well as to prospective buyers, lessees, or lenders prior to the closing of a transaction. Utilities are required, at the request of a building owner, to automatically upload energy consumption information for a building into Portfolio Manager software.

What is exempted by the legislation?

AB 1103 does not apply to multifamily buildings or the partial sale, lease, or financing of nonresidential buildings.

Other details:

The Statement of Energy Performance is valid for 120 days following its generation. If a building owner makes a subsequent disclosure outside of this time period, he or she must re-benchmark the building and generate a new Statement of Energy Performance. Building owners and sellers can increase their energy rating by conducting an energy audit of the building and by implementing the recommended energy efficiency improvements.

San Francisco, CA

The “Existing Commercial Buildings Energy Performance Ordinance” took effect in February, 2011.

What does the ordinance require?

Requires annual benchmarking, periodic energy audits, and the public disclosure of benchmarking information (via public website) for nonresidential buildings (both public and private) using Energy Star Portfolio Manager, which complements California's statewide initiative, AB 1103. Buildings must be over 10,000 square feet to be subject to the requirement. Compliance deadlines are staggered based on building size.

Washington

Washington's “Efficiency First Bill” (SB 5854).

What does the legislation require?

In May, 2009, Washington Governor Chris Gregoire signed into law SB5854, also known as the Efficiency First Bill. SB 5854 focuses on energy efficiency in the built environment and requires commercial building energy rating and disclosure, major improvements to the state energy code, and energy performance standards and retrofits (if necessary) for public buildings. By January 1, 2011, all non-residential buildings larger than 50,000 square feet were required to rate their buildings using Energy Star Portfolio Manager, and to disclose that information to prospective buyers, lessees, and lenders prior to the closing of transaction. Public facilities are also required to benchmark and report their energy use.

What is exempted by the legislation?

All non-residential buildings larger than 10,000 square feet will have the same requirements by January 1, 2012.

Other details:

Beginning January 1, 2010, qualifying utilities must maintain records of energy consumption data for all non-residential and qualifying public agency buildings for which they provide service. Upon receiving authorization from a non-residential building owner or operator, the qualifying utility must upload all of the energy consumption data associated with that building to the Portfolio Manager. Non-public, non-residential building performance data must be uploaded either in 2011 or 2012, depending on the size.

Seattle, WA

The city of Seattle opted to require mandatory disclosure for certain buildings.

What does the ordinance require?

Owners of non-residential and multi-family buildings must benchmark energy performance with Energy Star Portfolio Manager and disclose their results to the Seattle Department of Planning and Development (DPD) and to transactional parties.

Non-residential buildings 10,000 square feet or larger and multi-family buildings with four or more units are subject to the requirement. Initial compliance is being phased-in from 2011 to 2012.

Other details:

Building owners must thereafter annually report benchmarking data to DPD and disclose a Statement of Energy Performance to current tenants as well as prospective buyers, tenants, and lenders.

Maryland

Senate Bill 261

What does the legislation require?

Maryland is considering a bill that would require an owner or operator of certain privately owned commercial buildings to disclose certain energy benchmarking information to certain persons; providing that a purchaser or lessee who does not receive an energy benchmark disclosure statement on or before entering into a contract for sale or lease has the right to rescind the contract within a certain time and to the immediate return of any deposit; providing that a benchmark is valid for a certain time period; defining certain terms; and generally relating to the disclosure of energy usage information for privately owned commercial buildings.

Massachusetts

Building Energy Asset Labeling Program

What would the program require?

Massachusetts is proposing to develop and implement a building energy labeling program that includes both asset and operational energy ratings, and is integrated with utility-funded energy efficiency programs. Through a two-to-three-year pilot, the goal is to demonstrate the ability of an energy label to drive further investment in energy efficiency within the commercial building sector. See "An MPG Rating for Commercial Buildings: Establishing a Building Energy Asset Labeling Program in Massachusetts" (<http://www.mass.gov/eea/docs/doer/energy-efficiency/asset-rating-white-paper.pdf>). Scope: Public buildings that are greater than 10,000 square feet, and commercial and multi-family buildings that are greater than 10, 000 square feet.

City of Portland, OR

What does the ordinance require?

Portland has implemented a public disclosure requirement for commercial and multifamily buildings of 20,000 square feet or larger using the Energy Star Portfolio Manager tool.

What is exempted by the legislation?

Residential buildings are exempted.

New York City, NY

What does the ordinance require?

Benchmarking of all city-owned buildings began on May 1, 2010, and every year thereafter with benchmarking of commercial and multifamily buildings of 50,000 square feet or more beginning on May 1, 2011, and every year thereafter. Disclosure of building energy ratings to a public online website is scheduled to begin in September 2011 with energy audits and retro-commissioning once every 10 years.

Santa Fe, NM

In 2007, the city of Santa Fe passed an ordinance requiring that prospective new-home buyers be provided an energy rating using the Home Energy Rating System (HERS) and that all new buildings have that rating posted conspicuously prior to sale.

Washington, DC

Green Building Act, 2006

What does the ordinance require?

Requires buildings not only to meet certain LEED certification standards, but also that building owners benchmark and disclose their building's energy ratings independent of any transaction

Legislative Report, Working Group on Building Energy Disclosure, December 2011

and also to the general public, according to a phased-in schedule. Owners are also required to publish up-to-date building energy performance data to a public online database. The schedule for building ratings began in 2010 and goes according to square footage, beginning with buildings of 200,000 square feet or more and decreasing by 50,000 square feet each year, until reaching the floor of 50,000 square feet. Building owners must begin disclosing these ratings beginning in 2012.

Province of Ontario, Canada

In May, 2009, Ontario implemented the Green Energy Act 150.

What does the legislation require?

Home sellers will be required to have a home energy audit conducted and produce the audit report to a buyer in order to sell their home.

What is exempted by the legislation?

If the building is less than 10 years old on June 1, 2011, a rating must be submitted by the 10th anniversary of the year of construction. Condominiums are exempted. The single-family home is exempt from an ECAD audit if it meets any one of the following conditions. Within 10 years before the sale, the home received:

- At least three energy-efficiency improvements through the Austin Energy Home Performance with ENERGY STAR® program or an equivalent Austin Energy program. These improvements include: increasing attic insulation to R38; installing solar screens, solar film, or low-E windows; adding radiant barriers in the attic; replacing or insulating ducts; reducing air infiltration and sealing ducts; and installing new qualifying HVAC systems.
- A total of \$500 in rebates through the Austin Energy Home Performance with ENERGY STAR® program.
- Energy-efficiency improvements through the Austin Energy Free Home Improvements program, which is offered only to customers with low-to-moderate incomes.
- The building does not need an energy rating if it is a manufacturing facility that receives a Texas Sales Tax Exemption from Texas Tax Code 151.317.

Other places with disclosure requirements:

- Alaska requires home sellers to disclose average annual utility costs to prospective home buyers.
- Nevada requires the disclosure of energy efficiency characteristics of homes to prospective home buyers.
- South Dakota requires the disclosure of energy efficiency characteristics of new single-family and low-rise multifamily homes to prospective home buyers prior to the signing of a contract.

- Kansas requires the disclosure of energy efficiency characteristics of new single-family and low-rise multifamily homes to prospective home buyers prior to the signing of a contract.
- Santa Fe, New Mexico, requires newly constructed single-family homes to display HERS ratings to prospective home buyers.
- New York state’s Truth in Heating Law requires the disclosure of utility bills to prospective homebuyers and residential renters.
- Maine requires the disclosure of energy efficiency characteristics of homes to prospective residential renters. The Maine Public Utilities Commission has adopted voluntary standards for the energy rating and disclosure of homes and commercial buildings.
- Montgomery County, Maryland requires the disclosure of utility bills to prospective home buyers. The county has ENERGY STAR benchmarked and disclosed the energy performance of county facilities.
- Denmark has had a mandatory energy audit and labeling law for homes since 1996. It has a time-of-sale trigger, uses a “sticker”-type rating, and requires inclusion of a list of cost-effective potential improvements. The seller pays for the rating and audit report.

Summary of Energy Disclosure Options
Draft - 11/17/11

Time of Disclosure	Time of Sale		Time of Lease	Annual Benchmarking	
Property Type	Residential 1-4 Unit	Commercial, Mixed Use, and Multifamily 5+ Unit	Residential and Commercial Rental Units	Commercial >10,000 Sq. Ft	Public Buildings
Property Type Detail	NA	NA	All units up for lease	Buildings with >10,000 square feet of occupied commercial space	1. State-owned buildings 2. Municipal buildings 3. State college buildings
Requirement	1. Seller discloses estimated total BTU & BTU/sq. ft at time of showing the property 2. Buyer updates BTU estimate and gets work scope for improvements	Seller discloses total BTU and BTU/sq. ft at time of showing the property	Property owner discloses total BTU and BTU/sq. ft. for unit, plus estimate of annual energy costs	Property owner discloses total BTU and BTU/sq. ft of building on "Data Warehouse" on a public website	Property owner discloses total BTU and BTU/sq. ft of building on "Data Warehouse" on a public website
Method	1. Seller: Free online asset-based rating (e.g. EnergySavvy) 2. Buyer: in-home energy audit by BPI-certified professional	Seller generates BTU estimate using Portfolio Manager or DOE Asset Rating Tool	Property owner generates BTU estimate using Portfolio Manager or DOE Asset Rating Tool; alternative to use simple worksheet	Property owner generates BTU estimate using Portfolio Manager or DOE Asset Rating Tool	Property owner generates BTU estimate using Portfolio Manager or DOE Asset Rating Tool
Exemptions	Foreclosures/vacant homes Seasonal properties Low-energy-use properties	Industrial buildings Foreclosures/vacant properties Seasonal properties Low-energy-use properties	None?	Multifamily buildings Industrial buildings Foreclosures/vacant properties Seasonal properties Low-energy-use properties	Buildings <1,000 sq. ft. Foreclosures/vacant properties Seasonal properties Low-energy-use properties
Jurisdictions with Similar Requirements	Austin	Austin, California, Seattle, Washington state	Maine, San Francisco, Seattle	Austin, California, DC, New York City, San Francisco, Seattle	Michigan, Ohio, New York City

VI. "Whether the state should subsidize the cost"

The Working Group considered disclosure-related costs, and who should pay. Based on information developed by the technical subgroup, it is clear that there is a price-point continuum. On one end is an online tool with no cost to the end user, in the middle are moderately priced assessments (e.g., \$100 - \$300), and on the high end are more extensive ratings and audits such as a Home Energy Rating performed by a certified Energy Rater.

For the seller tool requirement, which had broad support from the Working Group, it was agreed that that tool should have no cost to the end user. For any buyer tool requirement, the Working Group concluded that for low-income end users, costs for such a tool would need to be subsidized. The working group did not try to define "low-income" for these purposes, but various options (e.g., qualification for LIHEAP or low-income weatherization services) are available to policy-makers for consideration. A funding source for any such subsidies would need to be identified.

Additionally, it is important to distinguish between end-user costs and program costs for some tools. For instance, there are online tools which could be offered at no cost to the end-user, but which do have a program cost for setup and maintenance (potentially in the range of \$100,000 per year). Entities such as the Department of Public Service and/or Efficiency Vermont could play a role in set up, maintenance, and licensing of the tool depending upon program costs and available funding. A funding source for these costs would need to be identified.

Commercial Transactions

Finally, with regard to commercial property, the working group generally favored periodic operational assessments, such as those produced by EPA Portfolio Manager. Portfolio Manager is a free public domain software tool that allows property owners to track and assess their energy and water consumption in a secure on-line environment.

VII. Notes to Legislature

During their discussions, the Working Group encountered issues to bring to the attention of the Legislature for further review and consideration in drafting any future legislation on building energy disclosure.

Rental markets: Consider ways in which a potential renter can be made aware of a unit's energy performance. Particular challenges in this market include change in use, frequency of turnover, and whether the owner or renter pays utilities. Despite those potential complications, this is an important issue to consider as renters, particularly low-income renters, would be significant beneficiaries of disclosure of energy performance and operating costs.

Residential property: Consider varying ways to define this market, e.g. "majority of space" within a building, "small residential" (1-4 dwelling units), "large residential" (5 or more units), number of stories, etc.

Commercial property: Consider appropriate tools for different kinds of commercial or multi-unit property, such as annual benchmarking. Also consider varying uses and whether they merit different tools, e.g. industrial, manufacturing, retail, and different sizes of buildings vis-à-vis asset rating methodology or operational rating methodology.

Multi-unit property: Consider whether disclosure requirements should apply to units or only to buildings when sold as a whole and, if the requirements are to apply to units, whether they should differ from the requirements that apply when the whole building is sold.

Involuntary transfer of title or transfer of title unrelated to sale, e.g. divorce or death: Consider the relative knowledge, or lack thereof, on the part of the bank, estate, or other "seller" of any information required to be disclosed.

Subsidization: Consider forms of assistance for low-income buyers, e.g. those defined as eligible for low-income weatherization.

Shelf life of audits: Consider situations in which an audit can already be considered to have been performed and does not need to be repeated. For example, an audit may not be required if a comprehensive one was performed within a certain number of years, regardless of who owned the property at the time. Possible substitutions should be considered as equivalent to an audit, such as a HERS rating, a recent RBES certificate, etc.

Deadline flexibility: Consider time required by the DPS to test accurate tools, implement rules, etc.

Required improvements: Consider, if disclosure is required, whether improvements identified by that disclosure should be required to be made (by either the buyer or the seller) and, if so, what incentives might be made available to enable completion of that work (e.g., tax credits, low interest loans, etc.).

Enforcement: Consider what enforcement mechanisms, and penalties, should be incorporated into the legislation. There may be opportunities to coordinate compliance efforts with code compliance initiatives for new construction.

State leadership: Consider requirements for energy performance disclosure (most likely on a periodic basis through the use of a tool such as EPA Portfolio Manager) to provide public transparency and enable the State of Vermont to lead by example.

Energy usage: Consider an additional requirement that sellers disclose the actual energy consumption of their property.

Funding: Consider funding sources for program implementation and maintenance costs.

Underwriting: Consider the degree to which underwriting standards can be adjusted to account for energy performance.

Voluntary tool: Consider options for creation of a voluntary tool for use by the public to assess building energy performance.

VIII. Straw Legislation

A. BUILDING ENERGY DISCLOSURE WORKING GROUP MAJORITY PROPOSAL (12 WORKING GROUP MEMBERS)

Introduced by

Referred to Committee on

Date:

Subject: Energy; energy efficiency; real property; buildings; energy performance disclosure

Statement of purpose: In connection with a transaction to sell real property, this bill proposes to require the seller to complete an energy disclosure using a free form that is available on line and to supply the disclosure to a prospective buyer when the buyer is shown the property.

An act relating to disclosure of a building's energy performance

It is hereby enacted by the General Assembly of the State of Vermont:

Sec. 1. 30 V.S.A. chapter 2 is added to read:

CHAPTER 2. BUILDING ENERGY PERFORMANCE

§ 51. PURPOSE

This chapter requires disclosure of the energy efficiency of residential and commercial buildings in order to make data on building energy performance visible in the marketplace for real property and inform the choices of those who may purchase the property.

§ 52. DEFINITIONS

As used in this chapter:

(1) “Asset rating” means a rating of a building’s energy use through modeling under standardized weather and occupancy conditions.

(2) “Board” means the public service board under section 3 of this title.

(3) “Btu” means a British thermal unit.

(4) “Building” means any enclosed structure created for use as a residence, a place of business, or any other activities, whether commercial or noncommercial in character.

(5) “Buyer” means a person to whom a building, real property containing a building, or a unit is or is to be sold or who makes an offer to purchase the building, real property, or unit, and the person’s agent, if any.

(6) “Commercial building” means any building that is not a residential building. The term excludes equipment and physical systems that are exempt from the commercial building energy standards under 21 V.S.A. § 268(a)(2) (industrial and manufacturing processes).

(7) “Commercial unit” means that part of a commercial building which is occupied by or intended for occupation by an individual owner or tenant.

(8) “Conditioned space” means space within a building that is heated or cooled or both by one or more physical systems.

(9) “Contract for sale” means an agreement containing the terms under which a seller agrees to transfer to a buyer all or any part of the ownership of a building, real property that contains a building, or a unit, regardless of whether the agreement is subsequently breached, modified, terminated, or performed.

(10) “Department” means the department of public service under section 1 of this title.

(11) “Large residential building” means a residential building that contains five or more residential units.

(12) “Low energy use building” means a commercial building or residential building whose peak energy usage design rate for all purposes is less than 3.4 Btus per hour, per square foot, or less than one watt per square foot of floor area.

(13) “Operational rating” means a rating of a building’s energy use by measuring actual energy consumption on an annual basis, taking into consideration all physical systems and their operation.

(14) “Residential building” means a building in which the space meets or is intended to meet the living needs of one or more individuals and excludes a building that mixes residential with commercial or other nonresidential uses.

(15) “Residential unit” means a separately enclosed space within a building that meets or is intended to meet the living needs of one or more individuals.

(16) “Sale” means a transfer of all or any part of the ownership of a building, real property that contains a building, or a unit.

(17) “Seller” means a person whose building, real property, or unit is or is to be transferred by sale or who offers to make the transfer, and the person’s agent, if any.

(18) “Small residential building” means a residential building that is a one-family dwelling or which contains up to and including four residential units.

(19) “Unit,” when used as a stand-alone term, includes commercial units and residential units, except when the context clearly refers to a unit of measurement.

§ 53. SCOPE; APPLICABILITY

This chapter applies to all new and existing residential buildings, residential units, commercial buildings, and commercial units, and real property containing such buildings or units, but does not apply to any of the following:

- (1) A transfer or change of title to real property or the right to possess real property by reason of inheritance, gift, marriage, or divorce.
- (2) An involuntary transfer of title resulting from default on an obligation secured by real property.
- (3) A low energy use building.
- (4) A building that does not contain conditioned space.
- (5) The sale of real property that does not contain a building.
- (6) A building that is used no more than 30 consecutive days annually between December 15 and April 15.
- (7) A building that is under construction and is not used, occupied, or habitable.
- (8) A farm structure as defined in 24 V.S.A. § 4413(d)(1).

§ 54. SELLER'S ENERGY DISCLOSURE

(a) Duty of seller. For a building, property, or unit that is within the scope of section 53 of this title, a seller shall provide a prospective buyer with an energy disclosure in accordance with this section.

(1) The seller shall provide the prospective buyer with this disclosure no later than the date on which the seller physically shows the building, property, or unit to be sold to the prospective buyer. The disclosure shall apply to the building, property, or unit that the seller physically shows the prospective buyer.

(2) In the event that a seller does not physically show the relevant building, property, or unit to the prospective buyer, the seller shall provide the energy disclosure no later than the date on which the seller executes a contract for sale with the buyer, and the energy disclosure shall apply to the building, property, or unit that is the subject of the contract for sale.

(3) On disclosure to a prospective buyer, the seller shall provide a copy of the disclosure to the statewide database established under section 55 of this title.

(b) Energy disclosure; creation. The seller's energy disclosure shall be created using the applicable tool developed or selected by the department for the seller's energy disclosure pursuant to section 56 (department; tool development; process) of this title. A seller's disclosure using this tool shall be created not more than two years prior to its provision to a prospective buyer unless within that two-year period there has been an addition, alteration, renovation, or repair to the building to which the building energy standards under 21 V.S.A. § 266 (residential building energy standards) or 268 (commercial building

energy standards) would apply, in which case the disclosure shall be created no earlier than the date on which the addition, alteration, renovation, or repair was completed.

(c) Energy disclosure tool. The department shall ensure that a seller's energy disclosure tool developed or selected for use under this section meets each of the following:

(1) The tool shall be readily and publicly available at no charge to the end user.

(2) The tool shall be available on the Internet and shall be capable of being completed and saved by a person using a web browser.

(3) For a small residential building, the applicable tool shall be based on an asset rating methodology. For other kinds of buildings, the applicable tool may be based on an asset rating or operational rating methodology. For residential units, different tools may be developed or selected according to building type (e.g., townhouse or flat style). In developing or selecting tools applicable to residential units, the department's goal shall be to allow, as much as possible, prospective buyers of such units to compare the units' energy performance regardless of whether the units are in a small residential or large residential building.

(4) A tool developed or selected by the department for a small residential building shall result in a rating that can be presented as a single number to allow comparison with other buildings or units rated with the same tool and shall have the following features:

(A) The disclosure shall present the rating as a single number on a visual scale.

(B) The disclosure shall compare the rating to other buildings or units of the same type as the building or unit being rated (e.g., an average building of the same type in Vermont or a building that meets the energy standards under Title 21 applicable to the type of building being rated).

(C) The disclosure shall produce an estimate, in Btus, of the site energy consumption of the building or unit based on standardized weather and occupancy conditions.

(D) The disclosure shall state the square footage of the building or unit and the energy consumed (in Btus) per square foot.

(E) The disclosure shall state an estimated annual energy cost.

(F) The disclosure shall itemize the data supplied by the user to reach the rating.

(5) For a building, property, or unit within the scope of this chapter that is not a small residential building, a tool developed or selected by the department shall meet the requirements of subdivision (4) of this subsection to the extent feasible.

(6) The rating generated by the tool shall be either compatible with the Home Energy Rating System (HERS) or the tool shall provide a means for comparing and reconciling the rating it generates with a HERS rating.

(7) The tool shall predict with reasonable accuracy the energy performance of the building or unit assuming an average occupant, and its results shall be repeatable and predictable.

(8) If the selected tool is one created for national use, the department shall ensure that it is appropriately adapted for use in Vermont.

§ 55. STATEWIDE DATABASE

(a) The director of property valuation and review, in consultation with the commissioner of public service, shall develop and maintain a statewide database of seller's energy disclosures issued pursuant to section 54 of this title.

(b) The database shall be publicly available.

§ 56. DEPARTMENT; TOOL DEVELOPMENT; PROCESS

(a) The department shall select or develop each tool required under section 54 of this title, after complying with each of the following:

(1) The department shall provide for broad public notice of the proposed tool, including notice on its web page and notice to mortgage lenders, persons licensed to engage in the business of selling or appraising real property in Vermont and each association of such persons, home inspectors, the Vermont Bar Association, each entity appointed to deliver energy efficiency under subdivision 209(d)(2) of this title, and energy efficiency experts and businesses. Notice also shall be given to the advisory committees described in 21 V.S.A. §§ 266(c) (residential building energy standards) and 268(c) (commercial building energy standards).

(2) The department shall provide a reasonable opportunity for the submission of written comments and to request a public hearing on the proposed tool. The department shall hold a public hearing on the proposed tool if so requested by 25 or more persons, a governmental subdivision or agency, or an association having 25 or more members.

(3) Following the actions described in subdivisions (1) and (2) of this subsection, the department shall adopt the tool, as it may be revised based on the comment and hearing process, for effect 90 days after the date of adoption. Immediately on adoption, the department shall cause the adopted tool to be posted on a website and shall provide notice of the adopted tool to each person who submitted comments on the proposed tool, to each person licensed to sell or appraise real property in Vermont and each association of such persons, to the Vermont Bar Association, and to each entity appointed to deliver energy efficiency under subdivision 209(d)(2) of this title.

(b) Using the procedures described in subsection (a) of this section, the department may from time to time revise or replace an adopted tool.

(c) The department shall be entitled to the assistance of the office of professional regulation created under 3 V.S.A. § 122 for the purpose of providing notice under this section to persons licensed to sell or appraise real property in Vermont.

Sec. 2. 32 V.S.A. § 3411 is amended to read:

Legislative Report, Working Group on Building Energy Disclosure, December 2011

§ 3411. POWERS OF THE PROPERTY VALUATION AND REVIEW

DIVISION

The property valuation and review division shall through its director:

- (1) employ such staff as is necessary, subject to the approval of the commissioner of the department of taxes;
- (2) cooperate fully with the commissioner in any matter in which he or she requires assistance in connection with his or her duties, including the valuation of property for any tax administered and collected by the commissioner;
- (3) adopt rules under 3 V.S.A. chapter 25 of ~~Title 3~~ to provide for the uniform administration of the property tax;
- (4) maintain any information obtained by the director from any local official subject to the same rules as to public access and confidentiality as apply to such information in the possession of a local official, as contained in section 4009 of this title;
- (5) provide technical assistance and instruction to the listers in a uniform appraisal system and provide other related assistance within the limits of available resources;
- (6) prepare and provide to towns at a reasonable fee form books, other required forms and copies of relevant statutes in booklet form;
- (7) to the extent of available resources to prepare and provide tax maps for all municipalities not having the same;
- (8) from time to time to develop and recommend to the general assembly improved methods for standardizing property assessment procedures and to administer the current use program in accordance with chapter 124 of this title;
- (9) annually publish the report described in section 3412 of this title;

(10) assist municipalities in administration of property taxes, including the appraisal of classes of property difficult to appraise, such as industrial and utility properties; ~~and~~

(11) appraise property required by law to be appraised by the director, including but not limited to railroad property under 32 V.S.A. chapter 21; and

(12) develop and maintain a statewide database of seller's energy disclosures in accordance with 30 V.S.A. § 55.

Sec. 3. APPROPRIATIONS

(a) For fiscal year 2013, the sum of \$ XXX is appropriated to the department of public service for the selection and development of energy disclosure tools pursuant to Sec. 1 (building energy performance) of this act.

(b) For fiscal year 2013, the sum of \$ XXX is appropriated to the department of taxes, division of property valuation and review, for the development of a statewide database pursuant to Sec. 1 of this act, 30 V.S.A. § 55.

Sec. 4. EFFECTIVE DATES

(a) This section shall take effect on passage.

(b) Sec. 3 (appropriations) of this act shall take effect on July 1, 2012.

(c) Secs. 1 (building energy performance) and 2 (property valuation and review) of this act shall take effect on January 1, 2014 except that on passage of this act, the department of public service shall have authority to select and adopt energy disclosure tools in accordance with the provisions of Sec. 1 and the director of property valuation and review shall have authority to develop a statewide database in accordance with Sec. 1, 30 V.S.A. § 55, and Sec. 2.

(d) On or before October 1, 2013:

(1) The department of public service shall select and adopt the energy disclosure tools required by Sec. 1 of this act.

(2) The director of property valuation and review shall complete development of the statewide database required by Secs. 1 and 2 of this act.

**B. BUILDING ENERGY DISCLOSURE WORKING GROUP MINORITY PROPOSAL
(SEVEN WORKING GROUP MEMBERS)**

Introduced by

Referred to Committee on

Date:

Subject: Energy; energy efficiency; real property; buildings; energy performance disclosure

Statement of purpose: In connection with a transaction to sell real property, this bill proposes to require the seller to complete an energy disclosure using a free form that is available on line and to supply the disclosure to a prospective buyer when the buyer is shown the property. The bill also proposes to require the buyer to complete a more detailed energy assessment prior to closing on the property, with the activities performed in connection with an assessment of a small residential building scaled so that the expected cost does not exceed \$300.00, adjusted for inflation.

An act relating to disclosure of a building's energy performance

It is hereby enacted by the General Assembly of the State of Vermont:

Sec. 1. 30 V.S.A. chapter 2 is added to read:

CHAPTER 2. BUILDING ENERGY PERFORMANCE

§ 51. PURPOSE

This chapter requires disclosure of the energy efficiency of residential and commercial buildings in order to make data on building energy performance visible in the marketplace for real property and inform the choices of those who may purchase the property.

§ 52. DEFINITIONS

As used in this chapter:

(1) "Asset rating" means a rating of a building's energy use through modeling under standardized weather and occupancy conditions.

(2) "Board" means the public service board under section 3 of this title.

(3) "Btu" means a British thermal unit.

(4) "Building" means any enclosed structure created for use as a residence, a place of business, or any other activities, whether commercial or noncommercial in character.

(5) “Buyer” means a person to whom a building, real property containing a building, or a unit is or is to be sold or who makes an offer to purchase the building, real property, or unit, and the person’s agent, if any.

(6) “Commercial building” means any building that is not a residential building. The term excludes equipment and physical systems that are exempt from the commercial building energy standards under 21 V.S.A. § 268(a)(2) (industrial and manufacturing processes).

(7) “Commercial unit” means that part of a commercial building which is occupied by or intended for occupation by an individual owner or tenant.

(8) “Conditioned space” means space within a building that is heated or cooled or both by one or more physical systems.

(9) “Contract for sale” means an agreement containing the terms under which a seller agrees to transfer to a buyer all or any part of the ownership of a building, real property that contains a building, or a unit, regardless of whether the agreement is subsequently breached, modified, terminated, or performed.

(10) “Department” means the department of public service under section 1 of this title.

(11) “Energy assessment” means an on-site technical review of the energy performance of a building or unit completed by a person qualified in accordance with this chapter.

(12) “Energy assessor” means a person qualified pursuant to this chapter and the rules of the department to conduct and complete an energy assessment.

(13) “Large residential building” means a residential building that contains five or more residential units.

(14) “Low energy use building” means a commercial building or residential building whose peak energy usage design rate for all purposes is less than 3.4 Btus per hour, per square foot, or less than one watt per square foot of floor area.

(15) “Operational rating” means a rating of a building’s energy use by measuring actual energy consumption on an annual basis, taking into consideration all physical systems and their operation.

(16) “Residential building” means a building in which the space meets or is intended to meet the living needs of one or more individuals and excludes a building that mixes residential with commercial or other nonresidential uses.

(17) “Residential unit” means a separately enclosed space within a building that meets or is intended to meet the living needs of one or more individuals.

(18) “Sale” means a transfer of all or any part of the ownership of a building, real property that contains a building, or a unit.

(19) “Seller” means a person whose building, real property, or unit is or is to be transferred by sale or who offers to make the transfer, and the person’s agent, if any.

(20) “Small residential building” means a residential building that is a one-family dwelling or which contains up to and including four residential units.

(21) “Unit,” when used as a stand-alone term, includes commercial units and residential units, except when the context clearly refers to a unit of measurement.

§ 53. SCOPE; APPLICABILITY

This chapter applies to all new and existing residential buildings, residential units, commercial buildings, and commercial units, and real property containing such buildings or units, but does not apply to any of the following:

(1) A transfer or change of title to real property or the right to possess real property by reason of inheritance, gift, marriage, or divorce.

(2) An involuntary transfer of title resulting from default on an obligation secured by real property.

(3) A low energy use building.

(4) A building that does not contain conditioned space.

(5) The sale of real property that does not contain a building.

(6) A building that is used no more than 30 consecutive days annually between December 15 and April 15.

(7) A building that is under construction and is not used, occupied, or habitable.

(8) A farm structure as defined in 24 V.S.A. § 4413(d)(1).

§ 54. SELLER’S ENERGY DISCLOSURE

(a) Duty of seller. For a building, property, or unit that is within the scope of section 53 of this title, a seller shall provide a prospective buyer with an energy disclosure in accordance with this section.

(1) The seller shall provide the prospective buyer with this disclosure no later than the date on which the seller physically shows the building, property, or unit to be sold to the prospective buyer. The disclosure shall apply to the building, property, or unit that the seller physically shows the prospective buyer.

(2) In the event that a seller does not physically show the relevant building, property, or unit to the prospective buyer, the seller shall provide the energy disclosure no later than the date on which the seller executes a contract for sale with the buyer, and the energy disclosure shall apply to the building, property, or unit that is the subject of the contract for sale.

(3) On disclosure to a prospective buyer, the seller shall provide a copy of the disclosure to the statewide database established under section 56 of this title.

(b) Energy disclosure; creation; exception. The seller's energy disclosure shall be created using the applicable tool developed or selected by the department for the seller's energy disclosure pursuant to section 57 (department; tool development; process) of this title.

(1) A seller's disclosure using this tool shall be created not more than two years prior to its provision to a prospective buyer unless within that two-year period there has been an addition, alteration, renovation, or repair to the building to which the building energy standards under 21 V.S.A. § 266 (residential building energy standards) or 268 (commercial building energy standards) would apply, in which case the disclosure shall be created no earlier than the date on which the addition, alteration, renovation, or repair was completed.

(2) Instead of using the applicable tool developed by the department under this section for the seller's energy disclosure, a seller of a residential building, property, or unit may satisfy his or her duty under this section by providing an energy assessment that complies with section 55(a)(1) of this title (residential buyer's energy assessment).

(c) Energy disclosure tool. The department shall ensure that a seller's energy disclosure tool developed or selected for use under this section meets each of the following:

(1) The tool shall be readily and publicly available at no charge to the end user.

(2) The tool shall be available on the Internet and shall be capable of being completed and saved by a person using a web browser.

(3) For a small residential building, the applicable tool shall be based on an asset rating methodology. For other kinds of buildings, the applicable tool may be based on an asset rating or operational rating methodology. For residential units, different tools may be developed or selected according to building type (e.g., townhouse or flat style). In developing or selecting tools applicable to residential units, the department's goal shall be to allow, as much as possible, prospective buyers of such units to compare the units' energy performance regardless of whether the units are in a small residential or large residential building.

(4) A tool developed or selected by the department for a small residential building shall result in a rating that can be presented as a single number to allow comparison with other buildings or units rated with the same tool and shall have the following features:

(A) The disclosure shall present the rating as a single number on a visual scale.

(B) The disclosure shall compare the rating to other buildings or units of the same type as the building or unit being rated (e.g., an average building of the same type in Vermont or a building that meets the energy standards under Title 21 applicable to the type of building being rated).

(C) The disclosure shall produce an estimate, in Btus, of the site energy consumption of the building or unit based on standardized weather and occupancy conditions.

(D) The disclosure shall state the square footage of the building or unit and the energy consumed (in Btus) per square foot.

(E) The disclosure shall state an estimated annual energy cost.

(F) The disclosure shall itemize the data supplied by the user to reach the rating.

(5) For a building, property, or unit within the scope of this chapter that is not a small residential building, a tool developed or selected by the department shall meet the requirements of subdivision (4) of this subsection to the extent feasible.

(6) The rating generated by the tool shall be either compatible with the Home Energy Rating System (HERS) or the tool shall provide a means for comparing and reconciling the rating it generates with a HERS rating.

(7) The tool shall predict with reasonable accuracy the energy performance of the building or unit assuming an average occupant, and its results shall be repeatable and predictable.

(8) If the selected tool is one created for national use, the department shall ensure that it is appropriately adapted for use in Vermont.

§ 55. RESIDENTIAL BUYER'S ENERGY ASSESSMENT

(a) Duty of buyer. Prior to the sale of a residential building, of property containing a residential building, or of a residential unit that is within the scope of section 53 of this title, the buyer shall cause the preparation of an energy rating based on an on-site assessment in accordance with this section. The energy assessment shall apply to the residential building, property, or unit to be sold to the buyer and shall be completed by an energy assessor. However, the buyer shall not be required to complete this energy assessment if one of the following applies:

(1) The seller provides to the buyer, in satisfaction of the seller's duty under section 54 of this title, an energy assessment of the building, property, or unit that complies this section.

(2) The building, property, or unit to be sold to the buyer is certified in accordance with 21 V.S.A. § 266(e) (residential building energy standards; certification) to meet the version of the residential building energy standards adopted under 21 V.S.A. § 266(c) that was in effect on the date the applicable contract for sale was executed.

(3) The building to be sold to the buyer is certified as a highly energy efficient building in accordance with a certification process (e.g., Leadership in Energy and Environmental Design) recognized under the rules of the department.

(4) The building, property, or unit to be sold to the buyer has undergone a residential energy efficiency improvement project through the home weatherization assistance program under 33 V.S.A. § 2502(a), a home energy efficiency retrofit program (e.g., Home Performance with ENERGY STAR[®]) administered by an energy efficiency entity appointed under section 209(d)(2) of this title, a home energy efficiency retrofit program approved by the public service board and administered by a natural gas distribution company under this title, or other certification process recognized under the rules of the department.

(b) Energy assessment; creation. An energy assessment under this section shall be created using the applicable tool developed or selected by the department for the buyer's energy assessment pursuant to section 57 (department; tool development; process) of this title. The assessment shall be created not more than five years prior to its provision to a prospective buyer unless within that five-year period there has been an addition, alteration, renovation, or repair to the building to which the building energy standards under 21 V.S.A. § 266 (residential building energy standards) or 268 (commercial building energy standards) would apply, in which case the assessment shall be created no earlier than the date on which the addition, alteration, renovation, or repair was completed.

(c) The department shall ensure that each tool developed for use under this section meets each of the following:

(1) The tool shall comply with subdivisions 54(b)(6) (HERS compatibility), (7) (reasonable accuracy), and (8) (national tool; adaption) of this title.

(2) For a small residential building, the tool shall comply with subdivision 54(b)(4) (single number) of this title. For a large residential building, the tool shall comply with that subdivision to the extent feasible.

(3) The rating generated by the tool shall be based on the results of an on-site inspection and energy assessment.

(4) The rating generated by the tool shall be capable of being compared to the rating created by a seller under section 54 (seller's energy disclosure) of this title for the same type of building, property, or unit.

(5) The tool shall generate recommendations for energy efficiency upgrades to areas of the building or unit and a scope of work and estimated costs for the upgrades, suitable for provision to a lender in connection with obtaining financing for the building or unit.

§ 56. STATEWIDE DATABASE

(a) The director of property valuation and review, in consultation with the commissioner of public service, shall develop and maintain a statewide database of seller's energy disclosures issued pursuant to section 54 of this title.

(b) The database shall be publicly available.

§ 57. DEPARTMENT; TOOL DEVELOPMENT; PROCESS

(a) The department shall select or develop each tool required under sections 54 and 55 of this title, after complying with each of the following:

(1) The department shall provide for broad public notice of the proposed tool, including notice on its web page and notice to mortgage lenders, persons licensed to engage in the business of selling or appraising real property in Vermont and each association of such persons, home inspectors, the Vermont Bar Association, each entity appointed to deliver energy efficiency under subdivision 209(d)(2) of this title, and energy efficiency experts and businesses. Notice also shall be given to the advisory committees

described in 21 V.S.A. §§ 266(c) (residential building energy standards) and 268(c) (commercial building energy standards)..

(2) The department shall provide a reasonable opportunity for the submission of written comments and to request a public hearing on the proposed tool. The department shall hold a public hearing on the proposed tool if so requested by 25 or more persons, a governmental subdivision or agency, or an association having 25 or more members.

(3) Following the actions described in subdivisions (1) and (2) of this subsection, the department shall adopt the tool, as it may be revised based on the comment and hearing process, for effect 90 days after the date of adoption. Immediately on adoption, the department shall cause the adopted tool to be posted on a website and shall provide notice of the adopted tool to each person who submitted comments on the proposed tool, to each person licensed to sell or appraise real property in Vermont and each association of such persons, to the Vermont Bar Association, and to each entity appointed to deliver energy efficiency under subdivision 209(d)(2) of this title.

(b) Using the procedures described in subsection (a) of this section, the department may from time to time revise or replace an adopted tool.

(c) The department shall be entitled to the assistance of the office of professional regulation created under 3 V.S.A. § 122 for the purpose of providing notice under this section to persons licensed to sell or appraise real property in Vermont.

§ 58. DEPARTMENT; RULES; ENERGY ASSESSMENTS; ENERGY ASSESSORS

(a) The department shall adopt rules to specify the activities and procedures used in completing the inspection and energy assessments under section 55 of this title and for the qualification of energy assessors. The rules also shall set out certification processes recognized by the department for the purpose of subdivisions 55(a)(3) (highly energy efficiency building) and 55(a)(4) (home energy efficiency improvement project) of this title.

(b) The energy assessment shall evaluate building energy performance and propose cost-effective improvements. The inspection shall evaluate the building envelope, insulation, ventilation, water heating system, space heating and cooling systems, appliances, and lighting. Activities to be conducted as part of the energy assessment may include blower door testing, carbon monoxide testing, and combustion testing.

(c) For a small residential building, the rules shall scale the activities necessary to perform the inspection and energy assessment so that they reasonably can be purchased at a cost not to exceed \$300.00 in 2011 dollars adjusted for inflation in accordance with the Consumer Price Index for urban consumers of the U.S. Bureau of Labor Statistics.

(d) To obtain qualification as an energy assessor, a person shall be qualified to perform a comprehensive inspection of a building, property, and unit to assess building energy performance and propose cost-effective improvements and to evaluate and test the building envelope, insulation, ventilation, water heating system, space heating and cooling systems, appliances, and lighting. The department shall coordinate the qualification process under this section with the accreditation process for

home energy rating organizations under 21 V.S.A § 267 and other existing accreditation and certification processes for energy efficiency evaluations to ensure that persons providing energy assessment services under this chapter are not subject to redundant qualification requirements.

Sec. 2. 32 V.S.A. § 3411 is amended to read:

§ 3411. POWERS OF THE PROPERTY VALUATION AND REVIEW

DIVISION

The property valuation and review division shall through its director:

- (1) employ such staff as is necessary, subject to the approval of the commissioner of the department of taxes;
- (2) cooperate fully with the commissioner in any matter in which he or she requires assistance in connection with his or her duties, including the valuation of property for any tax administered and collected by the commissioner;
- (3) adopt rules under 3 V.S.A. chapter 25 of ~~Title 3~~ to provide for the uniform administration of the property tax;
- (4) maintain any information obtained by the director from any local official subject to the same rules as to public access and confidentiality as apply to such information in the possession of a local official, as contained in section 4009 of this title;
- (5) provide technical assistance and instruction to the listers in a uniform appraisal system and provide other related assistance within the limits of available resources;
- (6) prepare and provide to towns at a reasonable fee form books, other required forms and copies of relevant statutes in booklet form;
- (7) to the extent of available resources to prepare and provide tax maps for all municipalities not having the same;

(8) from time to time to develop and recommend to the general assembly improved methods for standardizing property assessment procedures and to administer the current use program in accordance with chapter 124 of this title;

(9) annually publish the report described in section 3412 of this title;

(10) assist municipalities in administration of property taxes, including the appraisal of classes of property difficult to appraise, such as industrial and utility properties; ~~and~~

(11) appraise property required by law to be appraised by the director, including but not limited to railroad property under 32 V.S.A. chapter 21; and

(12) develop and maintain a statewide database of seller's energy disclosures in accordance with 30 V.S.A. § 56.

Sec. 3. APPROPRIATIONS

(a) For fiscal year 2013, the sum of \$ XXX is appropriated to the department of public service for the selection and development of energy disclosure and assessment tools pursuant to Sec. 1 (building energy performance) of this act.

(b) For fiscal year 2013, the sum of \$ XXX is appropriated to the department of taxes, division of property valuation and review, for the development of a statewide database pursuant to Sec. 1 of this act, 30 V.S.A. § 56.

Sec. 4. EFFECTIVE DATES

(a) This section shall take effect on passage.

(b) Sec. 3 (appropriations) of this act shall take effect on July 1, 2012.

(c) Secs. 1 (building energy performance) and 2 (property valuation and review) of this act shall take effect on January 1, 2014 except that on passage of this act, the department of public service shall have authority to select and adopt energy disclosure and assessment tools and to adopt rules in accordance with the provisions of Sec. 1 and the director of property valuation and review shall have authority to develop a statewide database in accordance with Sec. 1, 30 V.S.A. § 56, and Sec. 2.

(d) On or before October 1, 2013:

(1) The department of public service shall select and adopt the energy disclosure and assessment tools and adopt the rules required by Sec. 1 of this act.

(2) The director of property valuation and review shall complete development of the statewide database required by Secs. 1 and 2 of this act.

IX. Appendices

Appendix 1 - Residential Building Energy Rating Options for Vermont

Appendix 2 - HEST vs. HERS Granularity

Appendix 3 - Sub-Group Progress Report: Disclosure Recipients and Timing Powerpoint, October 27, 2011

Appendix 4 - Sub-Group Progress Report: Disclosure Rating and Audits Powerpoint, October 27, 2011

Appendix 5 - U.S. Building Rating and Disclosure Policies Map, Institute for Market Transformation and BuildingRating.Org

Appendix 6 - Comparison of U.S. Residential Energy Disclosure Policies, & Comparison of U.S. Commercial Building Energy Rating and Disclosure Policies

APPENDIX 1 -

Residential Building Energy Rating Options for Vermont (9/13/11)

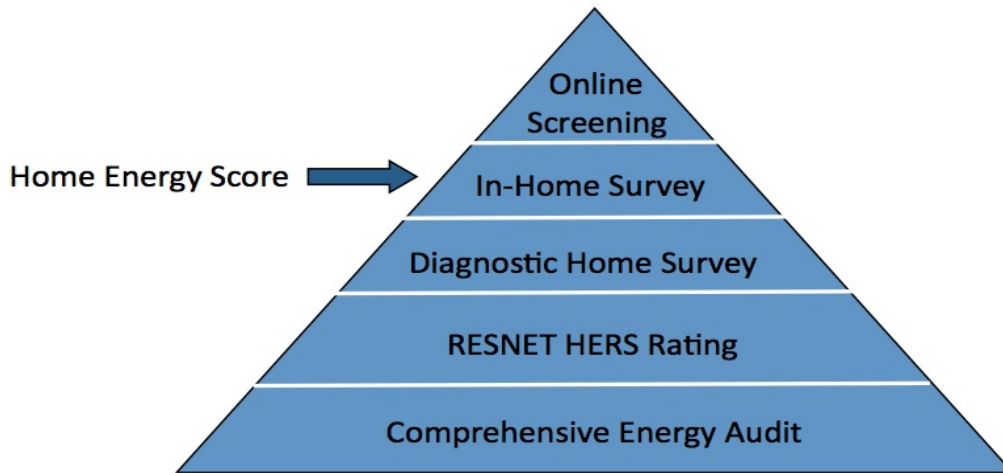
Feature	Online Screening			In Home Survey / Diagnostic Home Survey			RESNET HERS Rating
	EPA Home Energy Yardstick	EnergySavvy	Energy Measure (EM) View	Energy Measure (EM) Home	Home Energy Score (HES)	Energy Performance Score (EPS)	REM/Rate
Company	U.S. EPA	EnergySavvy	Conservation Services Group	Conservation Services Group	U.S. Department of Energy	Earth Advantage	Architectural Energy Corp.
Web Site	http://www.energy-star.gov/index.cfm?c=home_improvement.hm_improvement_index_tools	www.energysavvy.com	www.energymeasure.com	www.energymeasure.com	www1.eere.energy.gov/buildings/homeenergyscore	www.earthadvantage.org/programs/homes/energy-performance-score/	www.archenergy.com/products/remrate
Description	Simple, on-line tool that provides a score and options for goal-setting and recommendations	On-line, simple tool that provides score, recommendations, links to local contractors and immediate follow-up	New integrated suite of tools starting with simple on-line tool with ability for assessor to pick up from initial customer inputs and drill deeper in any area. Offers score and recommendations.	New integrated suite of tools starting with simple on-line tool with ability for assessor to pick up from initial customer inputs and drill deeper in any area. Offers score and recommendations.	Simplified national tool being piloted in 11 communities (with mixed results) delivered by qualified assessors. Offers score and recommendations.	Simplified inputs with integrated website makes recommendations, leads to on-line bids. Closest scoring to MPG equivalent.	Detailed comprehensive assessment of home, typically used with new construction. 0 = zero energy home, 100 = 2004 code home, >100 scores for homes that use more than 2004 code home
Number of Inputs	~10	~30	~30	~100?	~40	~35	~150
Scale	1-10	Customizable, 0-100	Customizable, 1-10	Customizable, 1-10	1-10	0-200+ (actual MMBTUs)	0-200+
Typical 1970 House Score	4	50	4	4	5	150	130
Typical New Home	9	80	8	8	9	70	80

Feature	Online Screening			In Home Survey / Diagnostic Home Survey			RESNET HERS Rating
	EPA Home Energy Yardstick	EnergySavvy	Energy Measure (EM) View	Energy Measure (EM) Home	Home Energy Score (HES)	Energy Performance Score (EPS)	REM/Rate
Score Basis	Compares your energy use to other “similar homes across the country”	Energy analysis engine allows for any score type generation	Sophisticated energy analysis engine allows for any score type generation	Sophisticated energy analysis engine allows for any score type generation	Compares rated home to energy use of regional homes broken into bins from RECS database	Absolute score of total MMBtu consumption	Normalized comparison of rated home to a reference home that is the geometric twin with 2004 code energy features
Site or Source Based	Source	Site	Site	Site	Source	Site	Site
Normalized Based on Home Size or Absolute	Unknown	Unknown	User has the choice	User has the choice	Normalized	Absolute	Normalized
Accuracy	Unknown	Blasnik-advised, so it should be pretty accurate	Blasnik-advised, so it should be pretty accurate	Blasnik-advised, so it should be pretty accurate	Questionable results are being fixed	Blasnik-advised, so it should be pretty accurate	Reasonable for new homes, deviates for existing buildings
Diagnostics (i.e., use of blower door / duct blaster)	None	None	None required, but can be added for more accuracy	None required, but can be added for more accuracy	Blower door required	None required, but can be added for more accuracy	Blower door/duct blaster required to override default values
Asset or Operational	Operational	Asset	Asset	Asset	Asset	Asset	Asset
Who completes	Homeowner	Homeowner	Homeowner, assessor or contractor	Trained assessor	Qualified assessor	Qualified assessor	HERS Rater
Capable of Generating a HERS Score	No	No	No	Not now, but maybe later	No	No	Yes
Local Control	No	Somewhat (can embed in existing website such as efficiencyvermont.com)	Somewhat	Somewhat	No	Somewhat	No

Feature	Online Screening			In Home Survey / Diagnostic Home Survey			RESNET HERS Rating
	EPA Home Energy Yardstick	EnergySavvy	Energy Measure (EM) View	Energy Measure (EM) Home	Home Energy Score (HES)	Energy Performance Score (EPS)	REM/Rate
Flexible/layered	No	No	Yes, significantly	Yes, significantly	No	No	Detailed or Simple
Recommends Improvements?	Not automatically, but will provide generic recommendations	Yes	Yes	Yes	Yes	Yes	No
Integrated System from Assessment to Recommendations	No	Yes	Yes	Yes	No	Yes	No
Cost to User Note: does not include professional assessor fees)	Free to web user	Free to web user	Free to web user	Program (EVT) would need to determine	Free	Program (EVT) would need to determine	\$800
Program Costs	N/A	\$15-\$100k+, depending on set-up factors, plus on-going maintenance fees, as needed	If just EMView, would be less than full suite cost (see EMHome)	\$200-\$300k initial set-up cost, \$10k/month service fee for full suite	Free (?)	\$120k for set-up, plus ~\$100k/year (based on volume, number of auditors and transactions; could potentially negotiate)	EVT owns local license
Greenhouse Gas Rating	Yes	No	Optional	Optional	No	Yes	Optional

APPENDIX 2 –
HEST vs. HERS Granularity

HEST vs. HERS Granularity



Time of Sale Energy Labeling of Homes: A Concept Paper, Philip Fairey (FSEC), Home Energy Magazine, July 2010 Issue.

APPENDIX 3 –

Sub-Group Progress Report: *Disclosure Recipients and Timing pp,*
October 27, 2011

Sub-Group Report: Disclosure Recipients and Timing

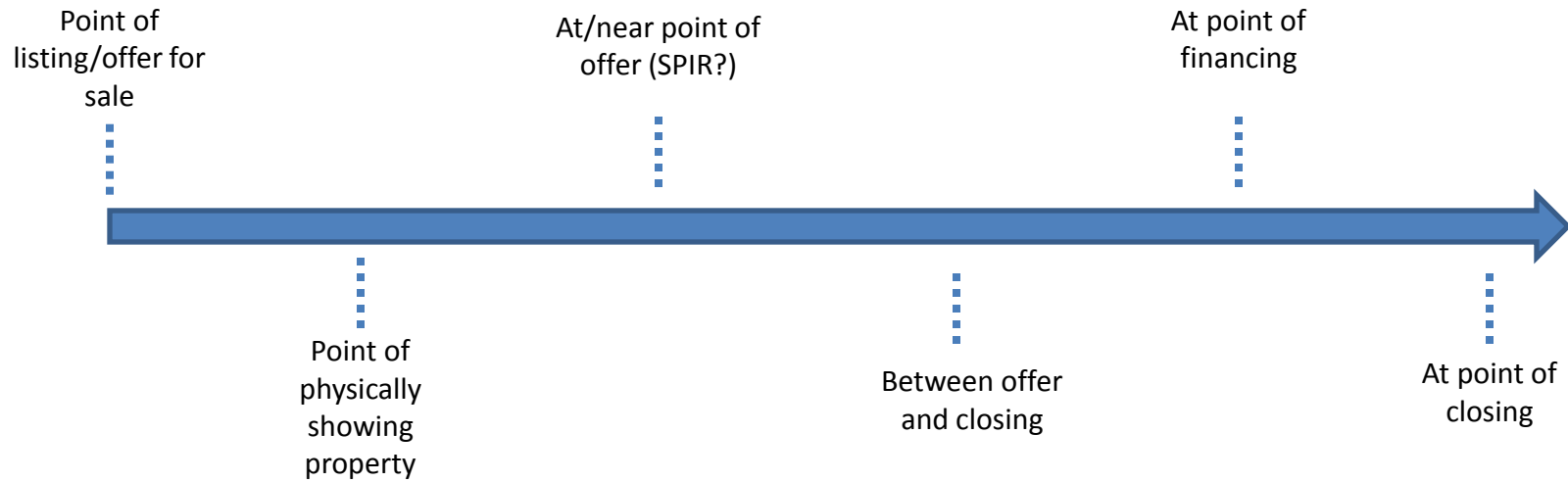
Working Group on Building Energy
Disclosure

October 27, 2011

Sub-Group Mission Review

- Consider the following questions:
 - When should disclosure take place?
 - To whom should disclosure be made?
 - If there are costs related to disclosure, who should pay?

Timing Options Tied to the Real Estate Transaction Process



Timing Options Not Necessarily Tied to the Real Estate Transaction Process

Periodic Disclosure
Point of Financing

Timing Options Tied to the Real Estate Transaction Process

Point of
listing/offer for
sale



Discussion

- Trigger: MLS listing (if represented sale, otherwise need to define)
- Benefit: consumers can comparison shop prior to making an offer
- Concern: potential to add cost and complexity at “fragile” time of transaction (varies based on type of tool)
- Issues: How to handle listed vs. FSBO properties
- Rating could be performed prior to listing

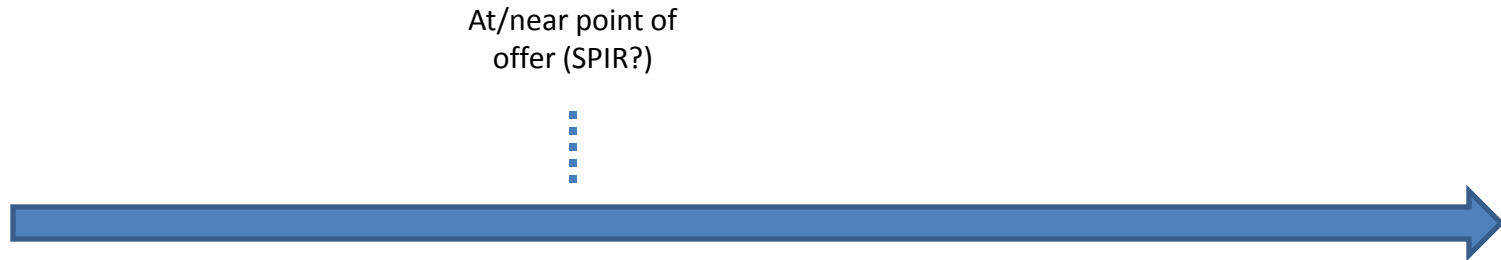
Timing Options Tied to the Real Estate Transaction Process



Discussion

- For represented sales, a consumer information disclosure (CID) defines who the agent represents, what the duties of the agent are
- Benefit: could provide consistent treatment for represented and non-represented scenarios
- For non-represented sales, this could be how we define the “first point of significant contact”

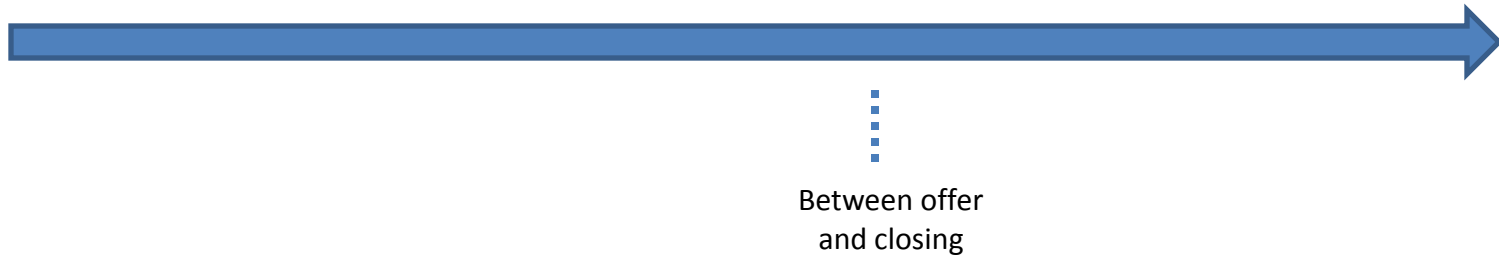
Timing Options Tied to the Real Estate Transaction Process



Discussion

- Require disclosure at time an offer to purchase is made ... OR as part of the SPIR ... OR w/in a certain number of days post-offer
- Issue: Further downstream in terms of market visibility, may not be as useful for appraisers, comparison shoppers, etc.
- By way of comparison, someone who makes an offer has an the option of requiring a satisfactory property inspection as a condition of closing

Timing Options Tied to the Real Estate Transaction Process



Discussion

- Similar to a home inspection contingency
- Rating could be done in conjunction with home inspection – process is consistent and already known
- Issue: Further downstream in terms of market visibility, may not be as useful for appraisers, comparison shoppers, etc.

Timing Options Tied to the Real Estate Transaction Process



Discussion

- Benefit: more ratings get done more quickly (captures both refi's and sales)
- This timing could create opportunity to allow (or require) lenders to consider energy costs/performance as part of underwriting criteria
- More likely to lead to upgrades if tied directly to financing

Timing Options Tied to the Real Estate Transaction Process



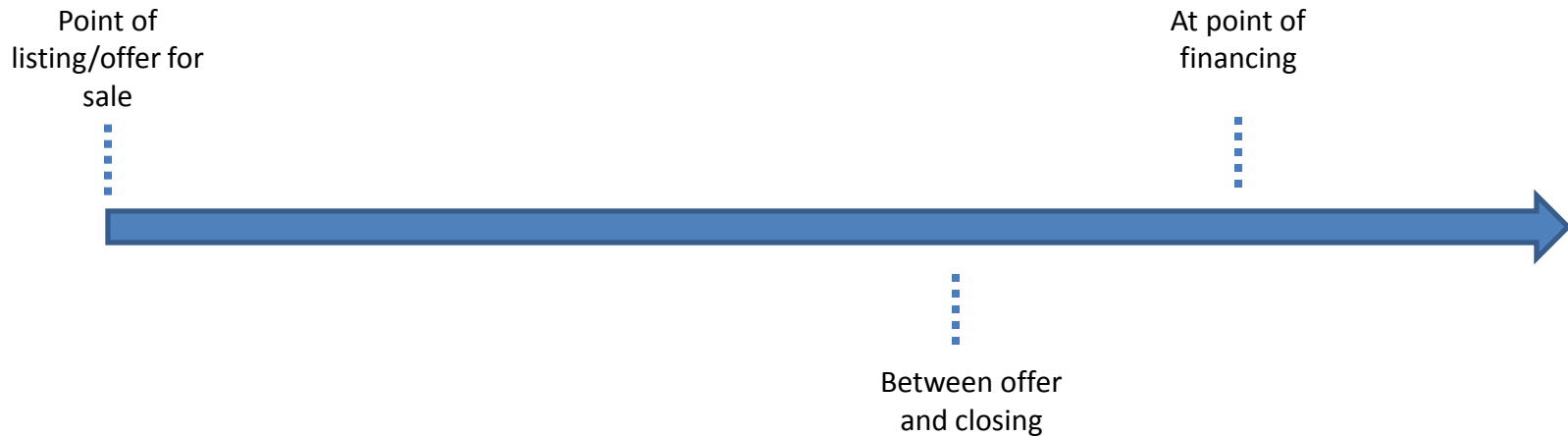
Discussion

- Benefit: no impact on transaction, takes place at the back end
- Issue: no impact on purchase decision, takes place at the back end
- Purchaser informed on a forward-going basis about energy saving opportunities
- Issue: how does this information becomes visible to the appraisal community

Periodic Disclosure (not tied to transaction process)

- Rolling disclosure on a periodic basis for all properties, not tied to sale/transfer
- Could increase the pace for more ratings happening more quickly
- Could be capacity issues depending upon ramp-up (phase-in requirement – regional?)

Two-Phase Model



Discussion

- Phase 1: Free online tool for disclosure @ point of listing
- Phase 2: In-home audit later in process
- Similar to SPIR/home inspection model
- Best of both worlds?

Who pays

- Scenarios will vary –
 - Free online tool
 - Low cost (\$100-\$300)
 - High cost (\$500+ for HERS, etc.)
- Two types of costs:
 - Cost (if any) to end user (buyer or seller)
 - Cost to program implementer (e.g., if using online tool, there are program setup costs, etc.)
- Issues for end-user costs
 - Given that there are both private and public benefits, what is a reasonable upper limit beyond which there should be a public subsidy?
 - Need to have some type of exemption for low-income buyers/sellers. WAP eligibility (~\$40,000/yr for family of 4) could be one threshold.
 - Efficiency Vermont may be able to provide some funding (most likely to support program setup and maintenance costs, database, etc.), but because most of the energy savings is related to heating fuels, not electricity, these resources are very limited
 - One potential annual cost estimate:
 - 5000 transfers/year * \$300/audit = \$1.5MM
 - Additional setup/maintenance fees for some options ~\$100,000/year

Disclosure to whom

- Buyer
- Seller
- Appraisers
- Lenders
- General public

Recommendations and Discussion

- 2 tier hybrid model – best of both worlds?
- Low-income subsidy for end user costs
- Database needed to ensure appraisers, lenders, other marketplace actors have access to the information
- Initial focus on residential?

APPENDIX 4 -

Sub-Group Progress Report: *Disclosure Rating and Audits pp*, October 27, 2011

Act 47 Building Energy Disclosure Working Group

Rating Subcommittee Report

October 27, 2011



Subcommittee Members

- Bob Hedden, Oil Heat Consultant and Educator (Vermont Fuel Dealers)
- Emily Levin, Efficiency Vermont (HERS Provider)
- Richard Faesy, Energy Futures Group (Energy Expert)
- Ward Smyth, Turtle Creek Builders (Home Builders)
- Ben Walsh, VPIRG (interested guest)



Overview

- Introduction
 - Where we are
 - Objectives
- Core principles review
- Recommendations
 - Score criteria
 - Rating approach & tool recommendations
- Outstanding issues



Where We Are

- Developed core principles
- Reviewed tools and scores
 - Demos and test drives
 - Presentations by experts and tool developers
- Check-in with Working Group
 - Adoption of core principles
- Today: Preliminary recommendations to Working Group



Subcommittee Objectives

- Develop core guiding principles for rating selection
- Develop a matrix comparing audit/rating options
- Prioritize options based on core principles to provide preliminary recommendations to the full working group

Core Principles



Core Principles

1. Reasonable cost to end user (\$0-300)
2. Rating can be presented as a single number or letter to allow market comparisons
3. Accurate
 - a) Repeatable, predictable results
 - b) Tool predicts energy use close to how an average occupant would use the house
4. Makes recommendations for upgrades to focus on high-priority areas
5. Smooth process to pursue upgrades based on rating
 - a) Optional link to home inspection



Core Principles (con't)

6. Residential: Asset rating – based on features of home rather than occupant behavior
7. Commercial/Institutional: Operational rating - occupant-based
8. HERS-compatible: If different than HERS, can be translated or linked to HERS (HERS-lite)
9. Tiered on-ramp - allowing drilling deeper if desired for more accuracy
10. Ability to customize and maintain for VT, but can be used and understood outside VT

Residential Recommendations

Score Criteria & Rating Approach Recommendations

- Score Criteria
 - Separate and distinct from rating tool decision
- Rating Approach
 - Stage 1
 - Free at time of listing by seller
 - Stage 2
 - Delivered by qualified contractor for buyer

Score Criteria



Score Criteria Recommendation

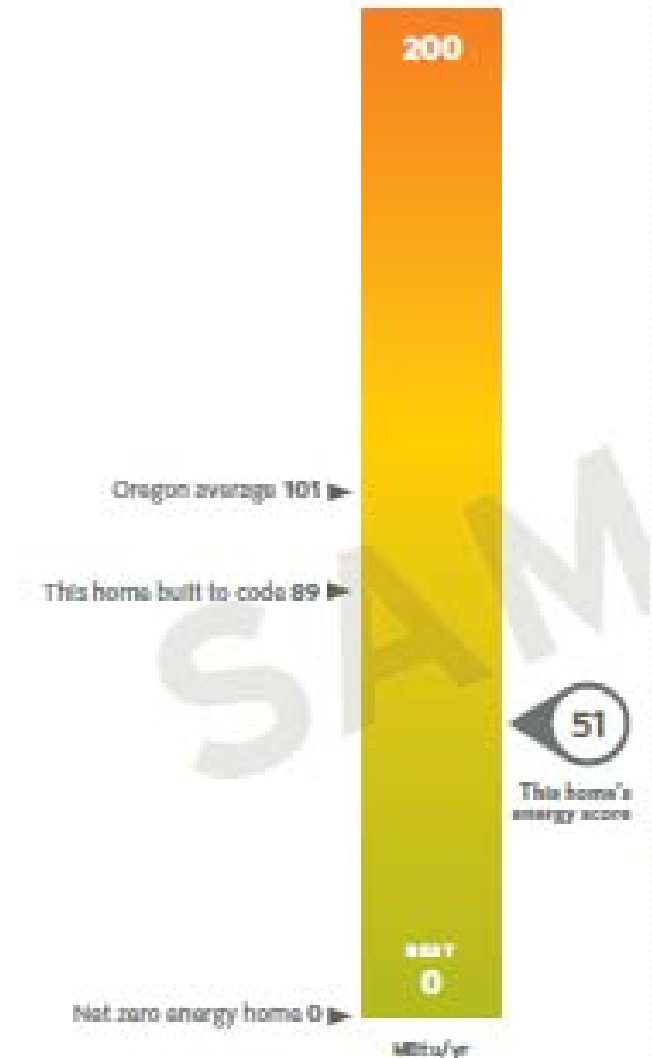
- Presents as a single number on a visual scale for context
- Provides comparisons to other homes (e.g. average VT existing home, code VT home, zero-energy home)
- Produces estimate of site energy MMBtu based on typical occupancy and weather
- Allows for normalization based on house size
 - Shows house square footage
 - E.g. MMBtu/sq. ft.
- Does not include a carbon scale
- Includes estimated annual energy cost
- Once DOE finishes Home Energy Score evaluation (12/2011), consider the merits of 1-10 national HES score approach
 - Could only be generated by trained and certified assessors

Energy Performance Score (EPS)

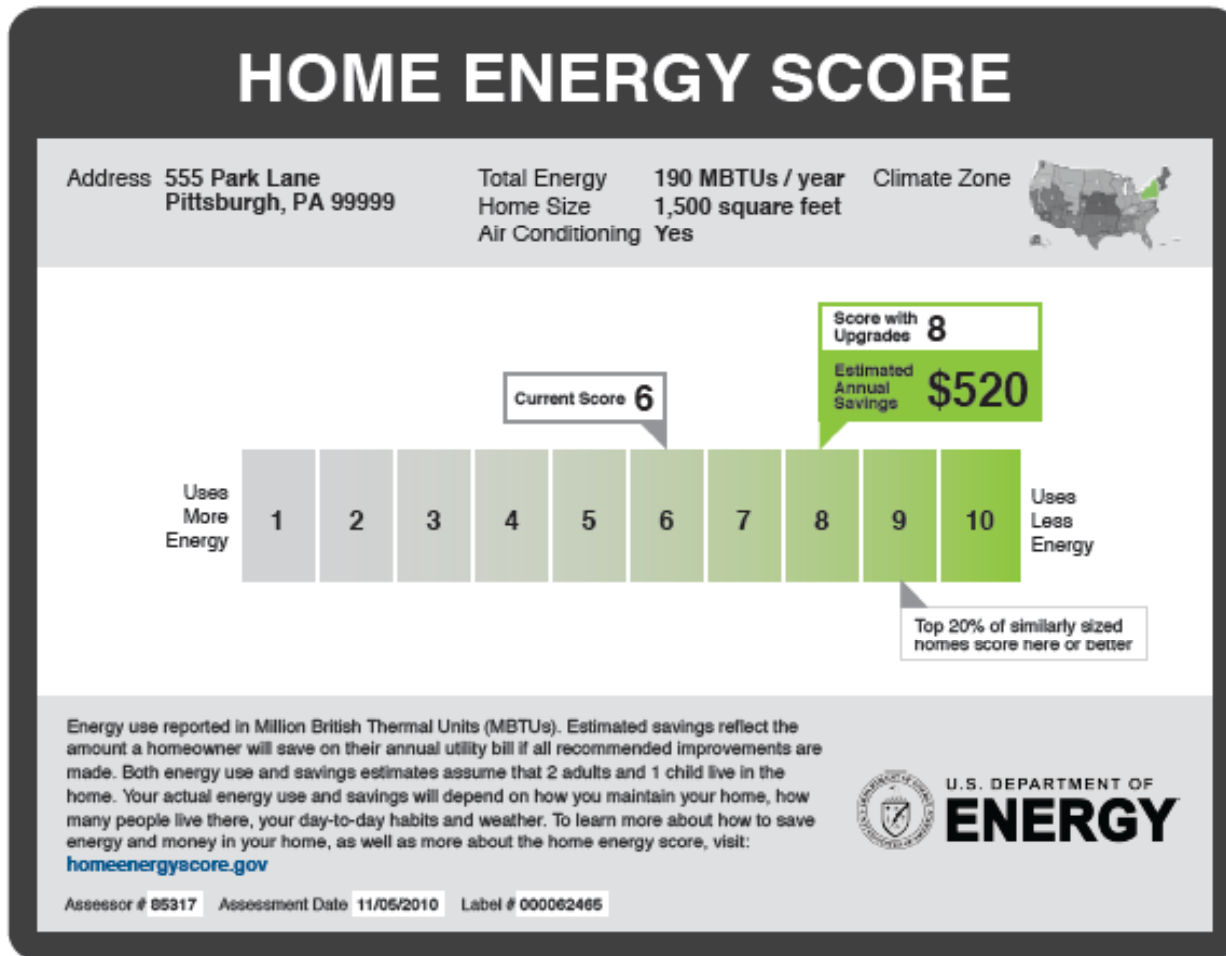
REPORT FOR: 12345 Example Road, Portland, OR 97217		PREPARED BY: Tyler Hadley, Energy Trust of Oregon	
ISSUE DATE: 02-01-2011 YEAR BUILT: 2011 SQUARE FOOTAGE USED FOR ENERGY CALCULATIONS: 2,000	ESTIMATED ANNUAL ENERGY USAGE: Electric (kWh): 512* Natural gas (therms): 491 <small>*Includes 2 kWh of PV Solar</small>	IDENTIFICATION ID: 123456 TYPE: Single Family	ESTIMATED AVERAGE ANNUAL ENERGY COSTS: \$598 monthly average: \$50 <small>* Actual energy costs will vary.</small>

- Score is actual site energy use in MMBtus
- Can also show BTU per square foot to compare homes of similar size

ENERGY CONSUMPTION
 Measured in million Btu per year (MMBtu/yr).
 One million Btu = 293 kWh or 10 therms.



Home Energy Score





EPS Research

- Energy Performance Score 2008 Pilot: Findings & Recommendations Report, June 2009
- Oregon testing of EPS in terms of accuracy and customer understanding
- They did a study showing it could be completed for about \$200
- Lacking the ability to do our own focus groups and research to test different scores, we recommend considering the score that has been most thoroughly researched

EPS Comparison Study Results

LBNL's Home Energy Saver,
not Home Energy Score

	REM/Rate	SIMPLE	HES-Mid	HES-Full
Mean Actual Use	101	101	101	101
Mean Predicted Use	133	84	157	119
Mean Error	32	-17	48	18
Mean Absolute Error	37	27	75	28
Median Absolute Error	31	21	66	23
Mean Absolute Percent Error	43.7%	25.1%	96.6%	33.4%
Median Absolute Percent Error	31.1%	24.0%	73.8%	21.8%
Percent of Homes with Accurate Prediction (less than +/- 25%)	43.2%	51.6%	19.5%	53.7%
Percent of Homes w/ Large Error in Prediction (larger than +/- 50%)	31.6%	7.9%	60.5%	21.6%

Table 3.5 Total Energy (MBtu) for 190-Home Sample

EPS Study Comparisons

	Energy Performance Score	HERS Index Rating	ENERGY STAR Rating
Easily understood	✓	✓	✓
Shows improvement over code-built version of home	✓ local codes for new homes	✓ IECC 2004 codes	✓ 15% better than local codes
Allows for comparisons of energy use with other homes	✓	✗	✗
Scale remains the same over time	✓	✗	✗
Possible to predict utility expenses	✓	✗	✗
Easy to compare with utility bills	✓	✗	✗
Can be used to evaluate the impact of energy use behavior	✓	✗	✗

Table 4.1 The Utility of the EPS, the HERS Index, and ENERGY STAR



EPS Study - Stakeholder Survey

- A. The EPS concept has considerable appeal for stakeholders.
- B. The ideal price of an EPS would be \$100 with a cap of \$200.
- C. Cost is a major issue and the common language for understanding energy and making improvements.

Rating Approach & Tool Recommendations



Rating Approach

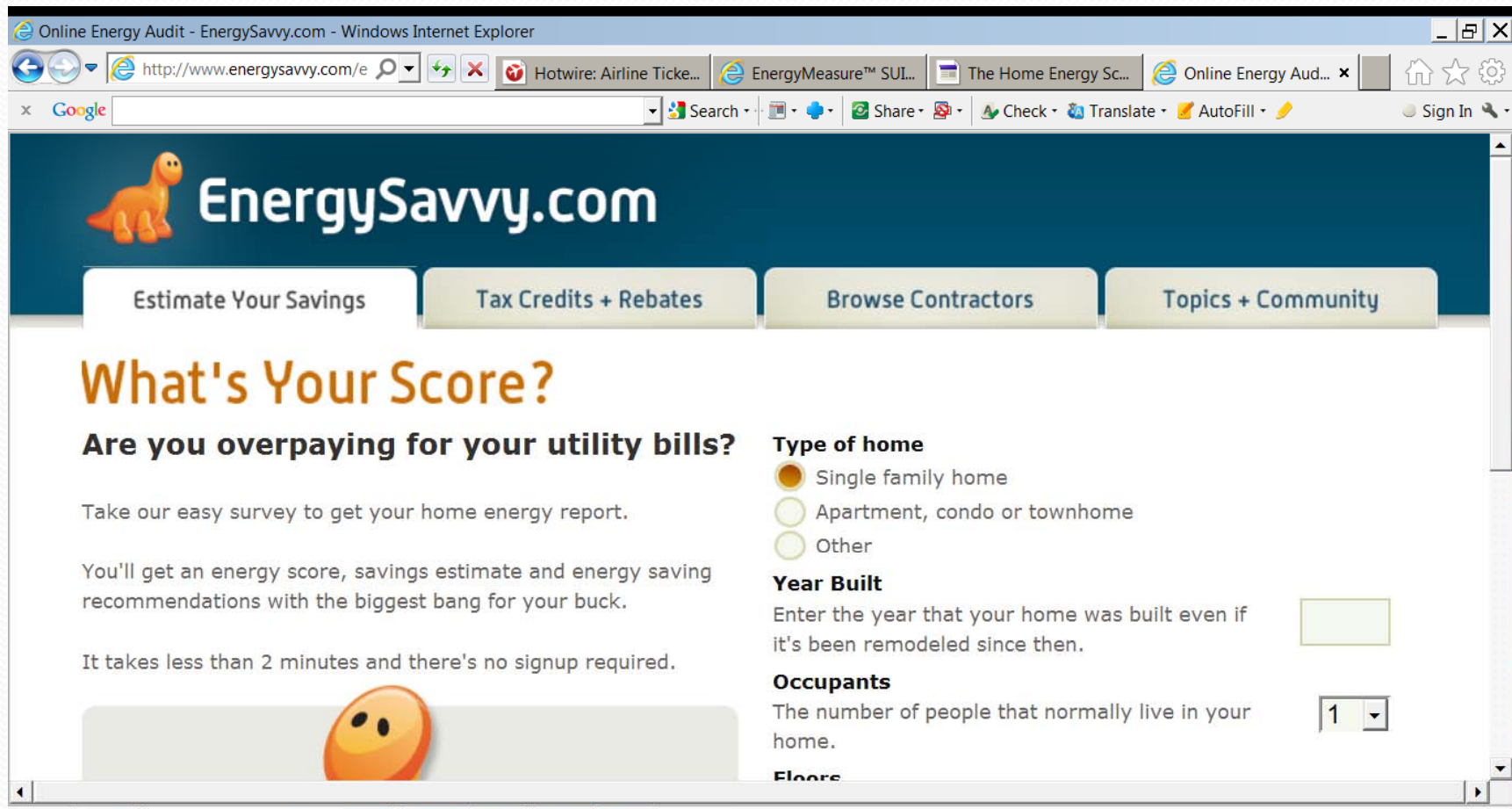
1. Stage 1 –free online rating completed by seller at time of listing
2. Stage 2 – more detailed in-home rating completed by certified auditor for buyer prior to closing



Stage 1 Rating

- Free online tool completed by seller
- Asset-based
- Simplified inputs
- Produces a brief report that can be printed and provided to potential buyers
- Technical support available
 - From Realtor or Efficiency Vermont Customer Support
- Produces an estimated EPS
- Tools that may be suitable for Stage 1 rating:
 - EnergySavvy
 - EM View

EnergySavvy




The screenshot shows the EnergySavvy.com website in a Windows Internet Explorer browser window. The browser's address bar displays the URL <http://www.energysavvy.com/e>. The website header features the EnergySavvy logo, which includes a cartoon orange dinosaur, and the text "EnergySavvy.com". Below the header, there are four navigation buttons: "Estimate Your Savings", "Tax Credits + Rebates", "Browse Contractors", and "Topics + Community". The main content area is titled "What's Your Score?" and asks, "Are you overpaying for your utility bills?". It provides a brief description of the service and a list of questions to be answered, including "Type of home", "Year Built", "Occupants", and "Floors".

Online Energy Audit - EnergySavvy.com - Windows Internet Explorer

<http://www.energysavvy.com/e>

Hotwire: Airline Ticke... EnergyMeasure™ SUL... The Home Energy Sc... Online Energy Aud... x

Google Search Share Check Translate AutoFill Sign In

 EnergySavvy.com

Estimate Your Savings Tax Credits + Rebates Browse Contractors Topics + Community

What's Your Score?

Are you overpaying for your utility bills?

Take our easy survey to get your home energy report.

You'll get an energy score, savings estimate and energy saving recommendations with the biggest bang for your buck.

It takes less than 2 minutes and there's no signup required.

Type of home

- Single family home
- Apartment, condo or townhome
- Other

Year Built

Enter the year that your home was built even if it's been remodeled since then.

Occupants

The number of people that normally live in your home.

Floors

EnergySavvy





✓ STRUCTURE

✓ HEATING & COOLING

3 APPLIANCES

4 USAGE

How much attic insulation do you have?

 <p>No insulation</p>	 <p>Some insulation</p>	 <p>Thick insulation</p>	 <p>Not sure</p>
--	--	---	--


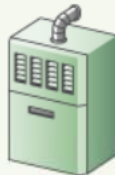
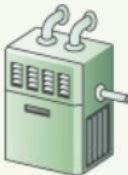

Is your clothes dryer natural gas or electric?

 <p>Natural Gas</p>	 <p>Electric</p>	 <p>No dryer</p>
--	---	---

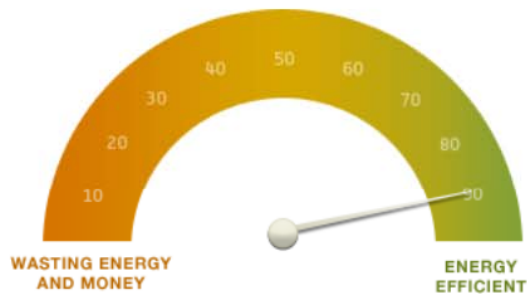
What fuel does your heating system use?

- Natural gas
- Electricity
- Oil

What kind of gas heater?

 <p>Over 20 years old gas heating</p>	 <p>Modern gas heating</p>	 <p>Modern gas heating (92% or better)</p>	 <p>Not sure</p>
--	---	---	---

EnergySavvy



YOUR SCORE:	ESTIMATED 3 YEAR SAVINGS:
91	\$558

Your Energy Score

You scored better than 98% of the homes in Addison County, VT. Your home is extremely efficient!

There may be a few most-effective efficiency upgrades that you can still make, but your home is a great candidate for getting the maximum benefits from solar, geothermal or wind.

[Take The Next Step](#) →

[Save my score](#) | [Share my score](#) | [Start over](#)

Your Customized Action Plan

Air seal your ductwork

Sealing your duct work, especially if it isn't located in your living space, can significantly reduce your HVAC system's energy waste. [\(More info\)](#)

[Get Bids](#) →

[Go beyond efficiency and consider going solar](#)

Typical 3 Year Savings: **\$558**

Heating



Replace with EPS Score

EnergySavvy

EnergySavvy will find the right contractor for your project. - EnergySavvy.com - Windows Internet Explorer

http://www.energysavvy.com/rt

Hotwire: Airline Ticke... EnergyMeasure™ SU... The Home Energy Sc... EnergySavvy will fi...

Google Search Share Check Translate AutoFill Sign In

EnergySavvy will find the right contractor for your project.

* All Fields Required

Your Name
Richard Faesy

City
Starksboro

State
Vermont

Zip
05487

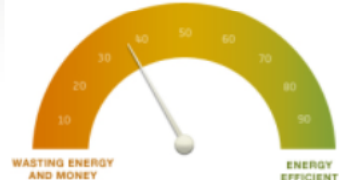
Email
rfaesy@energyfuturesgroup.com

Phone
802-355-9153

Project stage
Please Select One
Please Select One
Ready to Hire
Planning & Budgeting
Just Researching

What's on your mind? (Optional)
Tell us about your project needs.


Send Request



Improve Your Score


About Our Contractors

We work hard to ensure you have a great experience with expert contractors who really understand energy efficiency.



ASK ABOUT ENERGY STAR

Our prescreened contractors and auditors



EnergyMeasure View

EnergyMeasure™ VIEW powered by CONSERVATION SERVICES GROUP

 **Home Energy Survey**
How efficient is your home? [CONTRACTOR LOGIN](#)



5	Easy Steps Only 5 steps to find you savings from your roof eaves to your light bulbs.
7	Minutes to Complete Save hundreds of dollars on your energy bills in as little as 7 minutes.
12	Possible Ways to Save We will show you energy recommendations and incentives in your area.
\$0	It's Free

How much insulation is in your attic?

- Covers the ceiling beams Fills the ceiling beams Some
- I don't know



How leaky is your house?

- Very Leaky Somewhat Leaky Very Tight

Okay, now we know about your home. Next up, we will learn a little bit about your windows and roof.

[CONTINUE TO WINDOWS AND ROOF](#) >

EnergyMeasure View

1 YOUR HOME 2 WINDOWS & ROOF 3 HEATING & AIR 4 WATER HEATER 5 LIGHTING & APPLIANCES 6 YOUR RESULTS

← BACK TO WINDOWS AND ROOF

Heating and Air Conditioning

Your heating and air conditioning can greatly impact your energy efficiency. Please tell us about those components.

What is your usual setting for heating temperature?

68

TIP Click the green button above to select your choice. If you have a programmable thermostat, just use your best guess at the average temperature.

What is your main heating fuel?

Gas Electric Oil I don't know

How is your heat delivered?

Total Fuel Consumption

Category	Percentage
Appliances	43%
Refrigeration	21%
Lighting	22%
Air Handler	6%
Heating	12%

TIP Click the green button above to select your choice.

If you have a pool, how big is it?

No pool Wave Small Medium Large Very Large

If you have a spa/hot tub, what type of fuel does it use?

Gas Electricity Oil Solar

I don't have a spa

Do you have a dehumidifier?

Yes No

Total Fuel Consumption

Category	Percentage
Appliances	41%
Refrigeration	20%
Lighting	31%
Air Handler	8%
Heating	11%

EnergyMeasure View

EnergyMeasure™ VIEW powered by CS&G CONSERVATION SERVICES GROUP

1 YOUR HOME 2 WINDOWS & ROOF 3 HEATING & AIR 4 WATER HEATER 5 LIGHTING & APPLIANCES **YOUR RESULTS**

← BACK TO LIGHTING AND APPLIANCES

Your Results

★ RECOMMENDATIONS

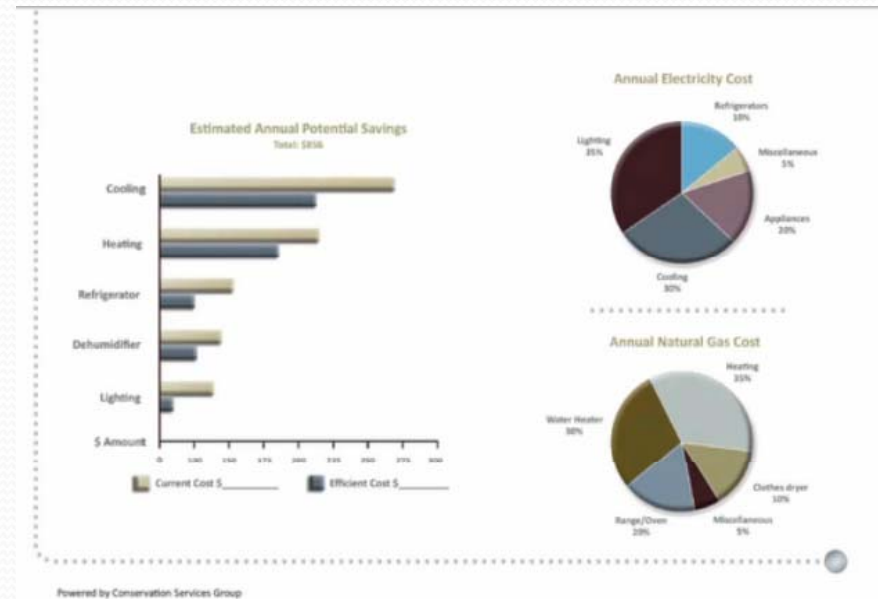
You may want to pursue the below recommendations in order to lower your energy use while increasing your living comfort. In addition to these benefits, installing these measures can also improve the health, safety, and durability of your home.

AVAILABLE INCENTIVES

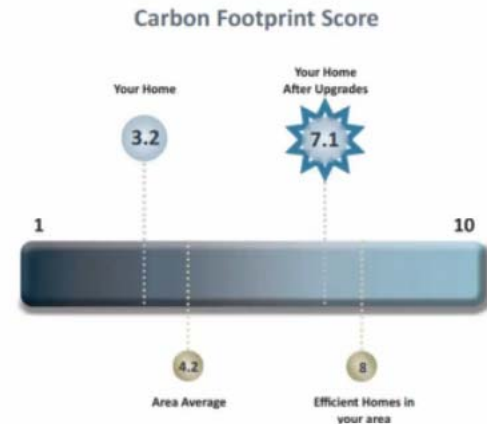
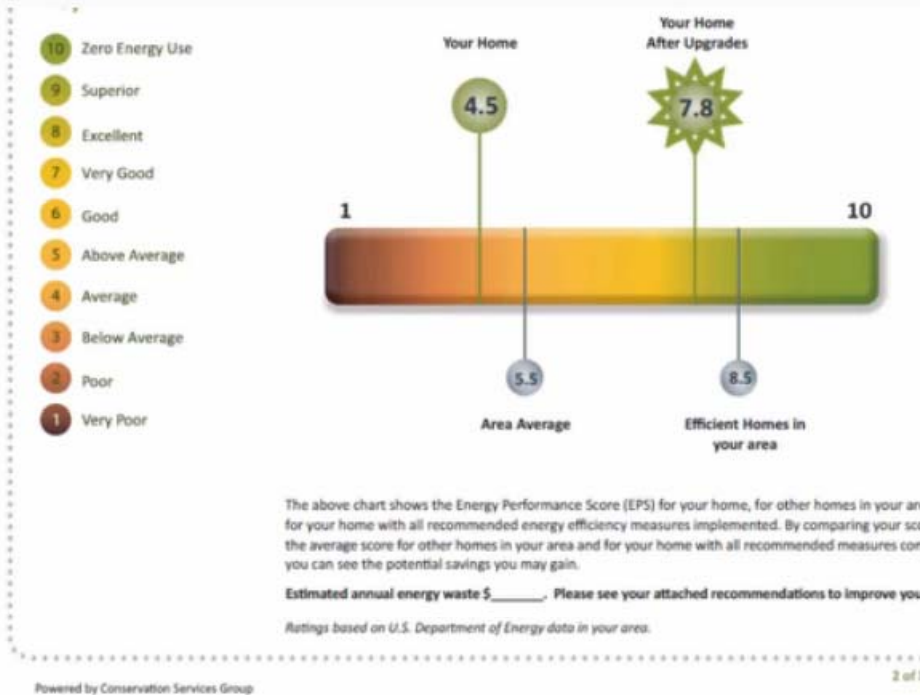
CHARTS

POSSIBLE SAVINGS

\$284	Seal areas of your home where air escapes
\$255	Insulate your attic
\$424	Insulate your walls
\$52	Insulate your basement ceiling
\$114	Replace your furnace with a high-efficiency model



EnergyMeasure View



The savings are equivalent to removing the emissions of ___ cars or planting ___ trees.

Thank you for helping the environment by reducing your carbon footprint. For more information go to: www.climateave.com.

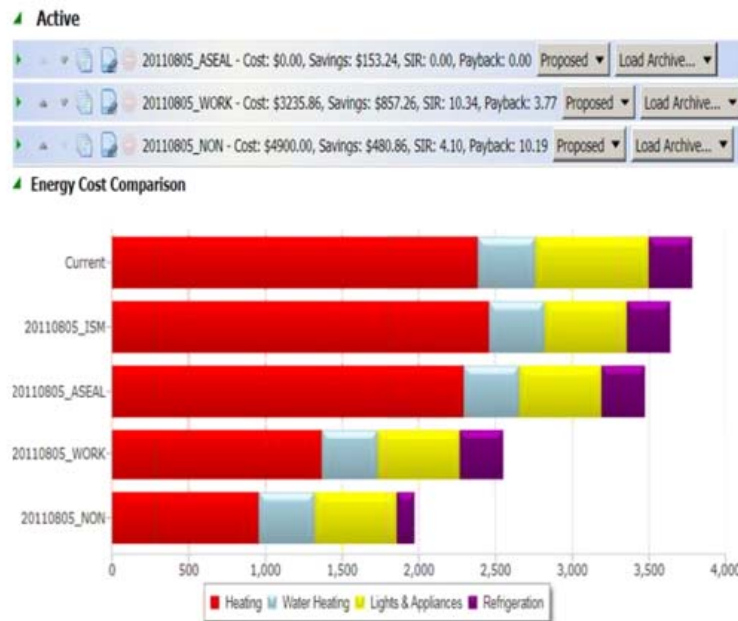
Source: Estimated carbon savings from electricity are based on the EPA's latest e-GRID data for average emissions in your region. Estimated carbon savings from fuel combustion are based on emissions factors from the Residential Greenhouse Gas Initiative (RGGI) Model Rule. Estimated environmental emissions are based on the EPA's latest e-GRID data for average emissions in your region.

Stage 2 Rating

- Voluntary or required for buyer prior to closing
- In-home energy assessment costing \$300 or less
- Completed by a certified auditor
 - Home Performance with ENERGY STAR contractor
 - Certified home inspector
- More detailed inputs including blower door test
- Health and safety testing (carbon monoxide, combustion)
- Provides a list of recommendations and a work scope with estimated cost for improvements, suitable for financing in mortgage
- Produces a more accurate EPS
- Tools that may be suitable for Stage 2 rating:
 - Earth Advantage EPS software
 - EM Home

EnergyMeasure Home

Scenarios




Multiple scenarios are easily created and compared



Energy Performance Score

ENERGY ANALYSIS REPORT



Energy Performance Score

Date: 10/24/11

Reference Number: 530004666

Address: 21 Ridge St
Montpelier, VT 05401

► **Contents**

- Annual Estimated Energy Use and Fuel Costs
- Comparing Your Utility Bills with the EPS Score
- Summary of Energy Performance Related Elements
- Summary of Recommended Energy Upgrades
- Detailed Notes Explaining Energy Upgrades
- Energy Upgrade Descriptions
- No- and Low-Cost Energy-Savings Strategies
- Financial Incentives

► **Annual Estimated Energy Use and Fuel Costs**

	Current Home			After Upgrades		
	Energy (kWh)*	Fuel Cost†	Carbon (tons)	Energy (kWh)*	Fuel Cost†	Carbon (tons)
Heating	35,800	\$4,581	7.8	20,200	\$2,585	4.3
Cooling	NA	NA	NA	NA	NA	NA
Water Heating	3,800	\$287	2.3	3,800	\$287	2.3
Lighting & Appliances	6,500	\$543	3.3	6,500	\$543	3.3
Total (Rounded-off)	48,000‡	\$5,371	13.2	31,000	\$3,395	8.9

*All energy forms are converted to their electrical energy equivalents, expressed in kilowatt-hours electric (kWh).
 †Fuel costs are based on prices at the time this report is issued and do not include taxes and surcharges.
 ‡Total Annual Estimated Energy Use is rounded to the nearest 1000 kWh.

Commercial Recommendations



Tool Recommendation

- EPA's Portfolio Manager
 - Operational rating used for benchmarking and continuous improvement
 - Benchmarking by market (hospital, school, office, etc.)
 - Most widely used, including all other cites with disclosure
 - DOE is now supporting and developing resources

Portfolio Manager

BATTLE OF THE BUILDINGS
EPA'S NATIONAL BUILDING COMPETITION
MIDPOINT TOP CONTENDERS ANNOUNCED!

About ENERGY STAR · News Room · FAQs · **KIDS!**

Search

ENERGY STAR Products Home Improvement New Homes Buildings & Plants Partner Resources

Buildings & Plants Home > Buildings & Plants > Portfolio Manager Overview

Portfolio Manager Overview

Portfolio Manager is an interactive energy management tool that allows you to track and assess energy and water consumption across your entire portfolio of buildings in a secure online environment. Whether you own, manage, or hold properties for investment, Portfolio Manager can help you set investment priorities, identify under-performing buildings, verify efficiency improvements, and receive EPA recognition for superior energy performance.

How can Portfolio Manager help me?

- ▼ [Manage Energy and Water Consumption for all Buildings](#)
- ▼ [Rate Building Energy Performance](#)
- ▼ [Estimate Your Carbon Footprint](#)
- ▼ [Set Investment Priorities](#)
- ▼ [Verify and Track Progress of Improvement Projects](#)
- ▼ [Gain EPA Recognition](#)

News

- [EPA Announces Top Contenders in ENERGY STAR National Building Competition](#)
- [City of Houston Wins Mayors' Climate Protection Award](#)

2011 Buildings & Plants News Room

Portfolio Manager Login

Username:

[Forgot your username?](#)

12:33 AM 9/17/2011



Portfolio Manager

- Commercial buildings eligible to receive a rating, representing over 50 percent of US commercial floor space, are:
 - Bank/Financial Institution
 - Courthouse
 - Data Center
 - Hospital (acute care and children's)
 - Hotel
 - House of Worship
 - K-12 School
 - Medical Office
 - Municipal Wastewater Treatment Plant
 - Office
 - Residence Hall/Dormitory
 - Retail Store
 - Senior Care Facility
 - Supermarket
 - Warehouse (refrigerated and non-refrigerated)

Outstanding Issues



Outstanding Issues

- Residential:
 - Process influences choice of tool
 - Need to differentiate accuracy of Stage 1 vs. Stage 2 score
 - Free Stage 1 rating may preclude consideration of DOE HES
 - Timing of Stage 2 rating so as not to disrupt closing
 - Adequacy of rating to access Energy Improvement Mortgages
- Commercial:
 - Portfolio Manager best used for benchmarking rather than time of sale
- Residential/commercial threshold
- Level of certification needed to perform Stage 1 and Stage 2 rating
- What is the process for making final decision on tools, score, etc.? DPS rule-making?



Summary Recommendations

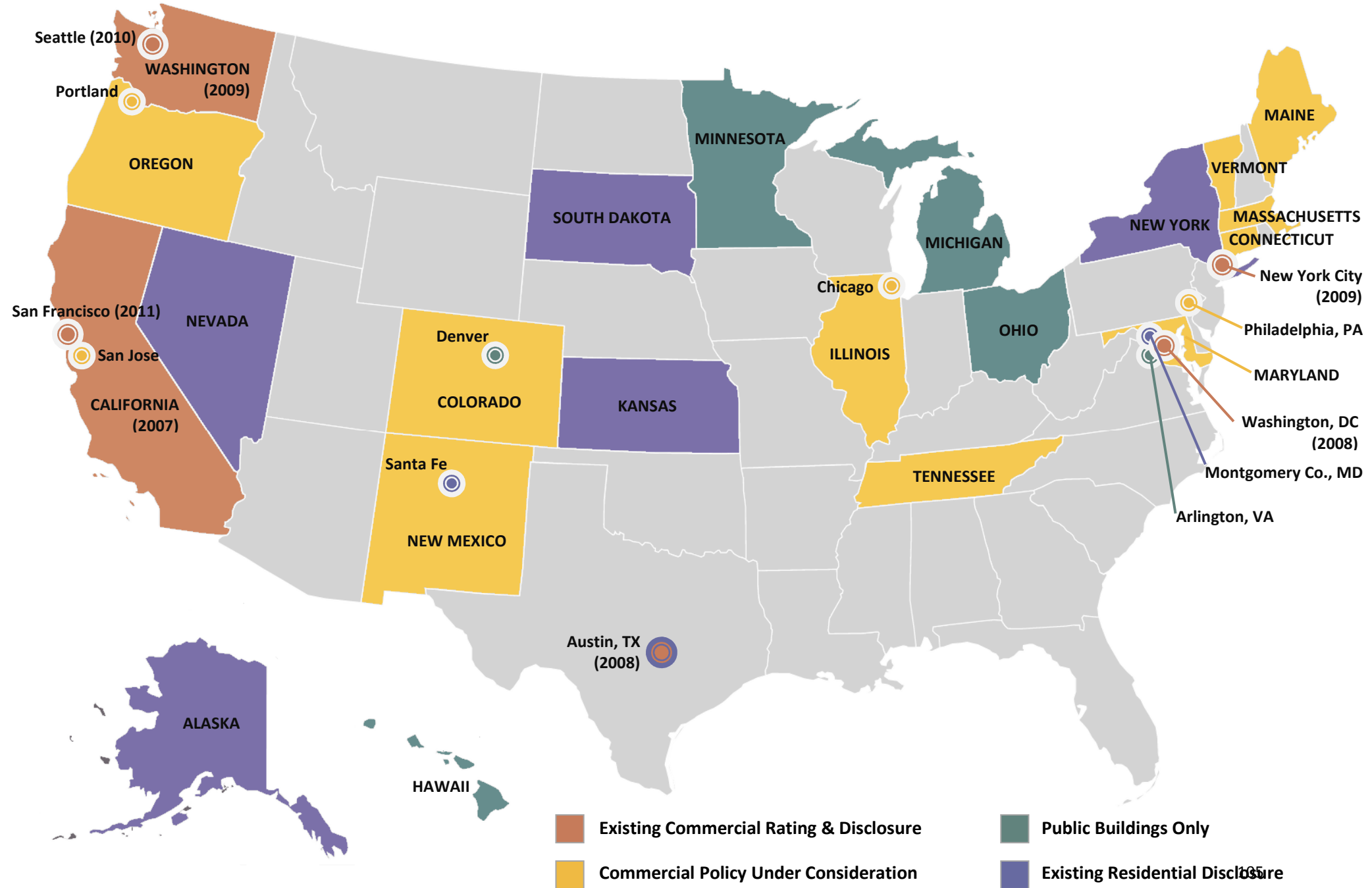
- Score Criteria
 - Separate and distinct from rating tool decision
- Rating Approach
 - Stage 1
 - Free at time of listing by seller
 - Stage 2
 - Delivered by qualified contractor for buyer
- Legislative language should:
 - Focus on *criteria* and not a specific score or tool
 - Allow for future flexibility and processes

APPENDIX 5 –

U.S. Building Rating and Disclosure Policies Map

U.S. Building Rating and Disclosure Policies

For more information, please contact Caroline Keicher, Institute for Market Transformation at (202) 525-2883, caroline@imt.org
To access this document online, see www.imt.org/rating or www.buildingrating.org



APPENDIX 6 -

Comparison of U.S. Residential Energy Disclosure Policies, &

Comparison of U.S. Commercial Building Energy Rating and Disclosure Policies

Comparison of U.S. Residential Energy Disclosure Policies

	Legislation				Disclosure			Trigger		Building stock
	Jurisdiction	Short name	Enacted	Effective	Efficiency Checklist	Utility Data	Evaluation/Audit	Sale	Rental	New Homes Only
Cities & Counties	Austin, TX	ECAD Ordinance	2008	2011	-	-	✓	✓	-	-
	Montgomery County, MD	Bill No. 31-07	2008	2008	-	✓	-	✓	-	-
	Santa Fe, NM	Ordinance No. 2007-38	2007	2008	-	-	✓	✓	-	✓
States	Alaska	AS.34.70.101	2008	2008	-	✓	-	✓	-	-
	Kansas	HB 2036	2007	2007	✓	-	-	✓	-	✓
	Maine	H.P. 1468 - L.D. 2074	2006	2006	✓	-	†	†	✓	-
	Nevada	SB 437	2007	2011	✓	✓	-	✓	-	-
	New York	Truth in Heating Law	1980	1981	-	✓	-	✓	✓	-
	South Dakota	SB 64	2009	2009	✓	-	-	✓	-	✓
Under Consideration	Connecticut	-	-	-	-	-	-	-	-	-
	Oregon	-	-	-	-	-	-	-	-	-
	Vermont	H.57	-	-	-	-	✓	✓	-	-

† Standards exist for a voluntary program

Comparison of U.S. Commercial Building Energy Rating and Disclosure Policies

	Legislation				Building Type & Size Threshold			Disclosure				Rating System		Additional Elements	
	Jurisdiction	Short name	Enacted	Effective	Gov't	Commercial	Multi family	Public Website	Gov't	Transaction	Tenants	Energy Star	Other	Utility Support	Audit/Improvement Requirement
Cities	Austin	Energy Conservation Audit & Disclosure (ECAD) Ordinance	Nov 2008	June 2011	✓	✓	Audits	-	✓	Buyers	-	✓	ACLARA	-	Audits & mandatory upgrades for multifamily buildings
	District of Columbia	Clean and Affordable Energy Act of 2008	July 2008	2010 -2014	10K SF+	50K SF+	50K SF+	✓	✓	-	-	✓	Energy Star Target Finder	-	-
	New York City	LL No. 476-A	Dec 2009	2010 - 2013	10K SF+	50K SF+	50K SF+	✓	✓	-	-	✓	-	-	ASHRAE level II audits and RCx, public building audits
	San Francisco	Existing Commercial Buildings Energy Performance Ord.	Feb 2011	2011 - 2013	10K SF+	10K SF+	-	✓	✓	†Buyers, Lessees, Lenders	✓	✓	-	†	ASHRAE level I or II audits every 5 years
	Seattle	CB 116731	Jan 2010	2011 - 2013	10k SF+	10K SF+	5+ units	-	✓	†Buyers, Lessees, Lenders	✓	✓	-	✓	-
States	California	AB 1103	Oct 2007	2011 - 2012	†	1K SF+	-	-	✓	Buyers, Lessees, Lenders	-	✓	-	✓	Mandatory upgrades to be developed under AB 758
	Washington State	Efficiency First SB 5854	May 2009	2011 - 2013	10K SF+	10K SF+	-	-	-	Buyers, Lessees, Lenders	-	✓	-	✓	Audits for public buildings with low ratings
Under Consideration	Colorado	SB 11-130	-	2012 - 2013	-	✓	-	-	-	Buyers, Lessees	-	✓	-	✓	-
	Connecticut	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Maryland	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Massachusetts	Building Energy Asset Labeling Program	-	-	10K SF+	10K SF+	10K SF+	TBD	-	-	-	TBD	Asset & Operational	-	ASHRAE level II audits and modeling
	New Mexico	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Portland, OR	High Performance Green Building Policy	-	2011 - 2013	-	20K SF+	20K SF+	-	✓	-	-	✓	-	-	Mandatory upgrades for blds w/ scores <30
	Tennessee	HB 96	-	2011	-	Audits	-	-	-	-	✓	-	TBD	-	Audit results displayed in building
	Vermont	H.57	-	2012	Audits	Audits	Audits	-	-	Buyers	-	-	TBD	-	Modeling proposed

† Required by previous action

To access this document online, see www.imt.org/rating or www.buildingrating.org

For more information, please contact Caroline Keicher, Institute for Market Transformation at (202) 525-2889 caroline@imt.org