Vermont Home Score and Label

Selected Public Comments

- Energy Savvy
- Earth Advantage
- Massachusetts Department of Energy Resources
- Northeast Energy Efficiency Partnerships
- Renewable Energy Vermont
- U.S. Department of Energy
- Vermont Agency of Commerce & Community Development
- Vermont Agency of Transportation
- Vermont Fuel Efficiency Partnership
- Vermont Gas Systems
- Vermont Housing & Conservation Board
- Vermont Natural Resources Council

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Date: September 4, 2013

To Whom It May Concern:

In response to the Vermont Home Energy Score Working Group's request for public comments regarding the Proposed Home Energy Score & Label, I am providing comments on behalf of EnergySavvy, an organization that serves energy efficiency and demand-side management programs across the country through innovative software solutions.

Driving Results

The end goal of implementing a score and label is to drive thermal energy efficiency through improved construction and increased retrofits in Vermont.[1] Implementing such a score will require effective execution by a community of energy auditors, contractors, and home inspectors.[2] And it is our experience that in the field it is critical that contractors are able to choose the tools that best enable them to conduct their business, drive volume, and reduce consumer price (and therefore friction).

Therefore, we recommend that the state of Vermont follow and participate in emerging national trends that provide flexibility in the tools contractors use to collect field data. This can be achieved by providing the contractor community with a structured framework for sending valid data in real time to a central score-processing algorithm. Contractors would be able to use their preferred tools for data collection, rather than a single mandated tool, and the state would have flexibility to modify the produced score and algorithm(s) over time without altering contractor process.

Choosing a Score

As the proposal acknowledges in Request for Comment #7[3], the Department of Energy (DOE) has a free, open platform for home scoring called the Home Energy Score. This score is being used nationally and, although much work remains to be done, **we encourage all parties to collaborate with the Department of Energy to foster a national standard that can potentially create broad market transformation**.

We appreciate that Vermont has unique characteristics like a high portion of Oil, Wood Pellets, and other unique factors that might not yet be accounted for in the score. And such characteristics need to be adequately accounted for in any Vermont implementation. Vermont has an opportunity to lead by helping the Department of Energy improve its score and to drive adoption in the Northeast. By contrast, if each state chooses its own score, it will contribute to further fragmentation and lower overall national standardization, which is critical to the industry's growth,

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[1] Voluntary Building Energy Disclosure in Vermont, page 3
[2] ibid, page 4
[3] "Would Vermont be at a disadvantage by not including any reference to DOE Home Energy Score (1-10)?.. Do the advantages of a national score outweigh these potential drawbacks?"

Operationalizing a Score

In the situation described by the proposal, there is a premium on being able to test scoring approaches and measure success over time. In our opinion, this is ideally accomplished by leveraging the DOE Home Energy Score, helping it to become more effective overall as well as potentially augmenting it with unique Vermont considerations. However, no matter what approach is initially selected, it is certain that requirements will change over time.

This suggests that a modular approach is best, managing scoring software as distinct from data collection. With a modular approach, data collected can be sent into one or more modeling algorithms separately. This not only helps avoid reliance on one proprietary algorithm, it also allows for proper testing, adjustments, and clean home-profile data collection distinct from scoring. This can be especially valuable in the event that the score evolves over time, for example if the scoring algorithm is to be supplemented with bill data, if Vermont chooses to modify its algorithm based upon empirical results or feedback from the real estate community, or if Vermont wants to test the effectiveness of one scoring method against another.

To accomplish this modular approach, **we suggest utilizing the industry standard for data collection, HPXML**. The standard is being championed by a number of programs, including NYSERDA, APS, LEAP[4], and supported by a growing number of audit software vendors including Cake Systems, Snugg Home, Optimizer, Energy Design Systems, and Hancock Energy Software[5]. This provides the requisite flexibility while maintaining strong data integrity.

Further Engagement

In our 5 years of business, we have worked with the Department of Energy on a variety of projects including improving the Home Energy Score label[6] and a current study testing the effectiveness of the DOE Home Energy Score. Additionally, EnergySavvy has worked with the Energy Trust of Oregon's Energy Performance Score and a myriad of modeling software tools. EnergySavvy would be honored to engage further with members of the Vermont community on scoring approaches.

Sincerely,

Tony Barnes
Director, Client Solutions
EnergySavvy

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[4] http://www.energysavvy.com/blog/2013/08/07/aps-deploys-optix-embraces-hpxml/
[5] EnergySavvy supports the HPXML standard for the transfer of home assessment information and has worked to increase the implementation of the standard in programs. We instituted a partner program to support seamless integration with tools that utilize the standard. All of the audit tool companies listed in this letter are currently participating in the program.
[6] EnergySavvy found that simpler presentation to home owners helped to drive action most effectively: http://www.energysavvy.com/blog/2011/03/25/three-ways-to-make-energy-efficiency-emotional/

Comments from Earth Advantage for Voluntary Building Energy Disclosure in VT

1. Overall, these graphic are good and easy to comprehend. The energy use intensity graphic is unappealing from our perspective. The use of the "picket fence" image seems busy and does reinforce the range of numbers graphically. We would also suggest reducing the relative size, proportion, and/or location of the energy use intensity graphic as well in order to emphasize the total annual energy use score.
2. Option 3 provides the most optimal information. We feel ideally that total annual energy use and energy cost by fuel are the most important metrics to portray.
3. Both suggested names are not consumer friendly and would be easily translated to a marketing campaign. As a voluntary system, marketing and promotion of the score are going to be critical for its success.
4. It is our opinion that HERS ratings are well suited for use in performance code compliance since they are a metric that was designed to be relative to energy code. The Vermont Building Energy Estimate should be used when comparing homes in the marketplace and therefore should also be the metric recorded on the MLS. It would be a best practice for the entire scorecard document to be uploaded to MLS to ensure that accurate scores are recorded. This is a practice that is beginning to be implemented by MLS systems across the nation to address the issue of inaccurate information being posted to MLS.
5. We believe onsite renewable energy production should be included in calculation of a home energy score. A net calculation does seem reasonable, especially with renewable systems that have been recently installed and typically have documentation onsite that estimates the annual production.
6. For delivering a score, a minimum competency in building science be required (e.g. BPI building analyst, HERS rater, etc.). Training should be required on collection of data, messaging of scoring program, and any approved software tools. It is also our opinion that any professional making weatherization recommendations should be trained in identifying combustion safety issues.
7. If Vermont chooses to pursue the score as currently designed without the HES score, we do not see it being at a disadvantage. However, Vermont may want to consider allowing an optional use of the HES' 1-10 score by individual program administrators around the state. They could do so in addition to presenting the required information in MMBtus/yr if they deem the 1-10 metric helpful to their specific program or locale. Overall, we see the HES 1-10 metric as potentially useful to provide consumers with some degree of context, but it does by itself provide the granularity or specificity required for real estate transactions or retrofit decision-making.
8. Eventually, a score methodology that includes multifamily dwellings would be optimal as that would allow potential renters to compare single family dwelling rentals with other housing options. We view commercial asset ratings as being a separate market and that the metrics for those building may be construed differently.

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Sept. 4, 2013

Dear Vermont Home Energy Score Working Group:

Thank you for the opportunity to comment on Vermont's proposed home energy score and label. Massachusetts is very supportive of building energy rating as a tool to make building energy performance more tangible and visible to real estate market actors (including buyers, sellers, renters, brokers, and appraisers), and, ultimately, to motivate building owners to invest in energy efficiency.

Below are Massachusetts DOER's comments on the proposed score and label, organized according to the specific questions posed by the working group in the "request for public comment" document dated 8/12/13. In addition, example scorecards currently being used in Massachusetts as part of Home MPG, a DOE-funded initiative within the MassSave Home Energy Services Program, as well as "scorecard design criteria" recently provided to one of our Home MPG vendors, are attached to these comments. The scorecards and criteria further illustrate Massachusetts' comments.

1. What is your intuitive reaction to the energy label designs? Are they easy to understand? Confusing? What do you like or dislike?

Total energy use metric vs. energy use intensity (EUI): MA strongly recommends using a total energy use metric (with reference points to better frame this metric), and does **not** support using an EUI metric. All of the example scorecards being used in Massachusetts' Home MPG initiative, provided as an attachment to this document, employ a total energy use metric. In addition to the advantages of a total energy use metric stated on pg. 5 of the "request for public comment" document, we believe that consumers intuitively expect smaller homes to have a lower score relative to larger homes (other things being equal). However, because larger homes typically "do better" when using an EUI-type metric, providing the home's EUI is not a straightforward metric (as compared with an energy use metric) and, consequently, would likely create confusion in the marketplace. Specifically, we believe that Option #2 (presented in the request for public comments document) will lead consumers to focus on the score that suits their situation, rather than providing a clear, consistent message about the home's energy performance. "Total energy use" also aligns well with "greenhouse gas impact" of homes; thus, using a total energy use metric helps raise awareness about the GHG impact of homes (which is a priority for Massachusetts.)

Inclusion of a greenhouse gas (GHG) metric: Massachusetts supports including a GHG or CO2-equivalent metric (in addition to the total energy use metric.) Such a metric will raise awareness of the home's carbon footprint, and thus support GHG reduction goals. The label is an appropriate place for such a metric; it would be a missed opportunity to not provide this information.

Reverse the x-axis: While we strongly support the metric used in Option#1 for reasons well-articulated on page 5 of the request for comments document, we recommend (on any label design) reversing the x-axis so that 0 is on the left hand side and the energy consumption increases from left to right.

Reference points: The "reference points" on the scale are important for "grounding" the information provided on the label. While the "0" is an obvious reference point, the other reference points on the scale are pivotal in how a consumer perceives and reacts to the score.

The work of Opower and others suggests that it is very helpful to provide a comparison to peers. For that reason, terms such as an "average of your neighbors" or "average new home in your area", or "Best home in your neighborhood" might be more easily understood, and consequently more influential, than the terms currently used on Options 1, 2, and 3.

The number at the end of the scale (200+ MMBtus/yr) is also an important reference point; it influences how consumers perceive the home's score, as well as any other reference points provided. We suggest that you consider lowering the number at the "end" of the scale (i.e., making it something less than 200) because that supports the "lower is better" message.[1]

Comparison to expected score if upgrades are implemented: One important "reference point" that is not included (in any of the versions of the label presented in the "request for public comments" document) is the comparison of the home's current score to the home's expected score if recommended efficiency upgrades are implemented. Assuming that the label is generated/delivered in conjunction with a home energy assessment that recommends efficiency improvements, Massachusetts recommends that the label include the expected score in order to make tangible the expected results of implementing such recommendations. All of the labels being used in Home MPG (attached) display both the home's current energy score, and the expected score if recommendations are implemented. Furthermore, in Home MPG, a second label is generated and delivered to the homeowner after recommended upgrades are implemented.

2. Do you prefer a simpler label showing only the Building Energy Estimate (BEE) in MMBtus/year (version #1)? Or do you prefer versions #2 and 3, which include the Energy Use Intensity (kBtus/square foot/year) and/or the annual energy cost, in total and by fuel?

BEE as the primary metric: As stated above, MA strongly recommends using a total energy use metric like the BEE (with reference points to better frame this metric), and does **not** support using an EUI metric.

Multiple metrics are OK as long as they are clear and do not result in an inconsistent message: Massachusetts believes that multiple metrics (and other pieces of information) on the label can be beneficial because they can provide a fuller picture of the home's energy performance, so long as

[1] We recognize that, with a lower end point, some homes may be "off the chart", and that, depending on the number of such homes, this may be undesirable. In Massachusetts, the end point of the scale on one label being employed in the Home MPG initiative is 300 MMBtu; we think that this is too large a number and are working to bring that down.

metrics are distinct, complementary, and send a clear, consistent message. For that reason, as stated above, we do not support using an EUI with the BEE. Also, an EUI-based metric would be similar to a HERS-type metric (in that both are calculated on a square foot basis) but there would still be differences between the two scores (due to some of the details in the way that the HERS rating is calculated) which would create further confusion in the marketplace.

Massachusetts supports including a GHG metric as stated above. In addition, we support providing information about fuel used in the home (see Option #3 on pg 8 of the request for public comments document.) However, we suggest showing the relative (i.e., percent) fuel use (i.e., electricity, oil/propane) rather than showing the relative cost associated with each fuel type.

3. What should the energy score(s) be called? Building Energy Estimate and Energy Use Intensity are possible names, but the Working Group is seeking input on what names would be most readily understood by consumers and in the context of a real estate transaction.

Massachusetts expresses no opinion on using the name "building energy estimate" or "BEE", and reiterates that we do not support using an EUI-type metric.

4. The Working Group is seeking to develop an energy metric and label that can complement HERS ratings, which many new homes in Vermont have received. There is currently a field for HERS in the Vermont Multiple Listing Service (MLS), which is used by home buyers, sellers, and the real estate industry. What are your comments on how the Vermont energy metric and label can best be used in combination with HERS ratings?

Massachusetts believes that, in the short term, the MLS can display either a home's HERS rating (if the home is new construction or "new enough" that a HERS rating could be credibly generated) or a home's BEE, or both metrics.

Massachusetts is supportive of HERS ratings for new construction, i.e., where there is opportunity to collect the information required for HERS ratings. In communities that have adopted the Massachusetts "stretch" building energy code (about 50% of MA communities), HERS ratings are required for new homes. In addition, in communities that have not adopted the stretch code, HERS ratings provide an optional "code compliance path" (This is allowed through MA amendments to the IECC baseline energy code.)

However, Massachusetts believes that a total energy use metric (such as the BEE) is more appropriate for existing homes. Because there are far more existing homes than new homes on the market, over time, the number of homes with a BEE-type metric would grow faster than homes with a HERS rating. For the near term, because HERS is recognized in the real estate market, displaying the HERS rating, BEE, or both, on the MLS (depending on the age of the home and whether information is available to generate the HERS rating) seems workable. Massachusetts does not believe that this will create confusion in the marketplace because consumers will naturally differentiate new homes from existing homes (for many reasons, not just energy performance), and thus having a different "yardstick" for these two groups of homes will not create market confusion in the short term. This is similar to the way that consumers in the automobile market differentiate between new and used cars.

One way to achieve a consistent rating more quickly is to use an API to allow RemRate and other HERS rating software tools to generate a BEE-type rating automatically for new HERS-rated homes. This would accelerate the conversion of all homes to a common metric – something that the HERS rating is limited in its ability to achieve.

5. How should the energy score treat renewable energy systems, such as solar photovoltaics (PV) and solar hot water? Should the MMBtu/year usage be calculated net of on-site renewable energy production?

Although Massachusetts has not yet made a clear decision on this topic, we are inclined to include all of the energy used by the home (regardless of whether the energy used comes from a renewable source) when generating the home's energy score. This is consistent with the purpose of the energy metric, i.e., to illustrate how the home performs in terms of energy use.

This question highlights one of the benefits of having a GHG-type metric score on the label, as well as energy consumption, broken down by fuel type (not cost by fuel type). Both of these metrics allow users to see the impact of renewable energy systems on the home without the need to modify the total energy use metric.

6. Who should be able to deliver the energy label? Should there be minimum training requirements or qualifications for assessors?

Massachusetts believes that, in order for a new metric to have credibility in the marketplace, the "raters" (i.e., people generating the rating) must have an appropriate degree of expertise and experience.[2] Massachusetts recommends requiring raters to have HERS or BPI certification, experience with blower door testing equipment, and classroom- or webinar- based training on the rating tool itself. We have found that these requirements are not difficult to meet while ensuring an appropriate degree of quality control and "consumer trust" in the rating.

7. Would Vermont be at a disadvantage by not including any reference to the DOE Home Energy Score (1-10)? The 1-10 score lacks some of benefits of MMBtus/year as a meaningful metric that corresponds to actual usage and does not change over time. Moreover, it goes in the opposite direction to HERS (a high score is better/more efficient in the DOE HES, whereas in HERS, 0 is best/most efficient. Do the advantages of a national score outweigh these potential drawbacks?

Massachusetts has worked closely with DOE since the beginning of the Home Energy Score (HES) development. However, HES is not being used in Home MPG (and we do not intend to advocate for its integration into MassSave). Massachusetts does not believe that we are disadvantaged for not using HES. Moreover, we question whether the HES is destined to become a national score as we are early enough in the energy score/rating "development stage" that other rating alternatives may prove to be the "market leader". There does not appear to be anything intrinsically better about the HES score, and there were some downsides when it was piloted in Massachusetts by the Cape Light Compact. In the long run, we believe that it would be beneficial if other actors/states independently evaluate what score format should be used.

8. This effort is focused on single-family homes. What are the considerations as Vermont seeks to develop an approach to building scores and labels that could eventually apply to multifamily and commercial buildings (which will be considered by a Working Group in 2014)?

[2] One of the mistakes made in the UK was in not having an adequate certification infrastructure in place when they rolled out their building energy scorecards, and they paid a heavy cost in terms of public acceptance as a result.

Massachusetts recognizes that, due to significant energy modeling challenges, it is more difficult to appropriately score/rate residential units in larger multi-family buildings in a cost-effective way. That said, we would expect the label on the front end of the energy model output to look very similar, if not identical to, a label used for a single-family home.

In addition, Massachusetts is piloting a commercial office asset rating. In contrast to residential homes, we believe that an EUI-type metric is appropriate for commercial buildings. That is because commercial spaces are leased or sold on a per square foot basis, whereas households are leased or sold as units. We believe that multi-family homes are more akin to single family homes in terms of how they are leased or sold.

Thank you for the opportunity to comment and for your thoughtful design process. Feel free to contact us if you have any questions about these comments. In addition, we hope that we can be a helpful resource for Vermont and the Working Group as you move forward.

Regards,

Ian Finalyson
Deputy Director, Energy Efficiency Division
MA Dept of Energy Resources

Alissa Whiteman
Energy Efficiency Program Manager
MA Dept of Energy Resources

September 4, 2013

Kelly Launder
Assistant Director
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Montpelier, VT 05620-2601
Subject: Comments regarding Vermont's energy metric and label options

Dear Ms. Launder,

On behalf of Northeast Energy Efficiency Partnerships (NEEP), thank you for the opportunity to provide input on the proposed Vermont energy metric and label options put forth by the Working Group.

Northeast Energy Efficiency Partnerships (NEEP)

NEEP is a regional nonprofit organization that works to accelerate the efficient use of energy in homes, buildings and industry in the Northeast and Mid-Atlantic states. We are committed to this work because saving energy creates a stronger economy, a cleaner environment and a more reliable and affordable energy system.

NEEP's Building Energy Codes Project, one of its oldest endeavors, aims to achieve significant energy savings and greenhouse gas reductions in new construction, remodeling, and renovations by advocating for advanced building energy codes and code-related public policies, such as building energy disclosure. For the last six years, NEEP has worked to help states in the Northeast and Mid-Atlantic realizes the high impact savings potential of building energy rating and disclosure policies. Back in 2009, NEEP released a report *Valuing Building Energy Efficiency through Disclosure and Upgrade Policies* and are pleased to share its companion report as an additional resource, *Building Energy Rating and Disclosure: Update and Lessons from the Field*, which documents not only Vermont's recent experiences but others throughout the United States in order to better understand the opportunities of rating and disclosure. This 2013 report, among other things, calls for establishment of an asset rating and label to set a common currency of value for energy efficiency, and, thereby, to drive cost-effective energy efficiency improvements in buildings. We encourage the Working Group to review the 2013 companion report for lessons learned and how they can be applied to rating and disclosure in Vermont.

NEEP's comments on the Working Group questions:

1. What is your intuitive reaction to the energy label designs? Are they easy to understand? Confusing? What do you like or dislike?

NEEP agrees with the Working Group's approach that the energy label should be "asset" based. NEEP believes that any building energy label should be able to be easily understood and utilized by the financial industry to qualify low interest loans and mortgages and therefore needs to be tied to the 'asset'. An 'operational' rating is not recommended because it is affected by variable end user habits or as a home's occupant's change.

NEEP's least preferred of the labels was option #1, as we feel it does not paint a complete picture. Consumers would benefit from a granular breakdown of energy use per square foot and its associated

annual energy cost; therefore we recommend a combination and slight reorganization of options #2 and #3. However, NEEP also thinks the heavy use of spatial data representation (i.e. rating scales) makes for a very busy, potentially confusing label with #2 and #3. Please see "Attachment A" for a suggested reordering of critical label information, modeled after the widely used and recognized E-Star Energy Guide used for appliances.

2. Do you prefer a simpler label showing only the Building Energy Estimate (BEE) in MMBtus/year (version #1)? Or do you prefer versions #2 and 3, which include the Energy Use Intensity (kBtus/square foot/year) and/or the annual energy cost, in total and by fuel?

NEEP prefers an amended combination of labels #2 and 3 (see Attachment A). NEEP would like to see the BEE (MMBtu/yr) figure represented as a single number instead of as a rating scale. Since the BEE is dependent on the size of the home, it is not appropriate to place it on a rating scale: a 1,000 square foot apartment built to the energy code will use much less energy than a 10,000 square foot house built to energy code. The analogous argument holds for "high performance" homes.

While it is possible to adjust the "built to code" and "high performance" energy marks on the scale based on the size of the home, it seems unnecessarily complicated. Plus, "built to code" and "high performance" is dependent on when the house was rated and what code was enforced at the time, which introduces further potential confusion for potential tenant / buyer.

NEEP recommends that greenhouse gas information be included somewhere on the label. For other labels, NEEP has suggested that carbon emissions, derived by a regional conversion factor through site energy, be included. This could be presented as a single number— lbs of CO_2 produced—and either be placed alongside the BEE figure or in the fuel cost section. Carbon emissions reductions are a high priority for local, state and federal government(s) and therefore inclusion on the label will encourage reductions in carbon and show the link between home energy consumption and greenhouse gas emissions.

Recommendations for energy efficient upgrades should also be made available to the home owner. Such recommendations could tie into utility programs as part of a an effort to support comprehensive retrofit measures.

3. What should the energy score(s) be called? Building Energy Estimate and Energy Use Intensity are possible names, but the Working Group is seeking input on what names would be most readily understood by consumers and in the context of a real estate transaction.

While Energy Use Intensity (EUI), EUI is accepted and commonly used by building energy professionals. and it would pair nicely with $/SF, commonly cited on MLS. NEEP would recommend using Home Energy Estimate or Home Energy Assessment. Something along these lines as this terminology would be easier for a renter or buyer to understand.

4. The Working Group is seeking to develop an energy metric and label that can complement HERS ratings, which many new homes in Vermont have received. There is currently a field for HERS in the Vermont Multiple Listing Service (MLS), which is used by home buyers, sellers, and the real estate industry. What are your comments on how the Vermont energy metric and label can best be used in combination with HERS ratings?

Not all homes will have a HERS Index, but NEEP suggests that it could be included in a very minimal way (for instance, in a small box in the bottom-right corner of the label).

5. How should the energy score treat renewable energy systems, such as solar photovoltaics (PV) and solar hot water? Should the MMBtu/year usage be calculated net of on-site renewable energy production?

On-site generation of renewable energy could be incorporated into the "Energy Cost by Fuel" bar graph in a few ways:

1) Overlaid onto bar graph to give a visual representation of how much energy cost is saved
2) Added as a negative entry in the bar graph. The section would need to be tweaked to allow for a clear axis.
3) In large, bold font it could be visually subtracted from the Energy Cost subtotal with a longhand subtraction representation.

6. Who should be able to deliver the energy label? Should there be minimum training requirements or qualifications for assessors?

NEEP suggests that the Working Group consider existing certification platforms as a requirement for professionals to participate in the program. These Third-party raters must be subject to a quality-control process. Therefor NEEP suggests that this group examine quality assurance, contractor audit, and third party verification practices as outlined in the ENERGY STAR for Homes, Home Performance with ENERGY STAR and Weatherization Assistance program requirements.

NEEP also strongly suggests that professional certifications consider and align with existing channels so that existing credentialed professionals are not required to receive extensive additional training and certification. Recognizing that the existing credentialing platforms that focus on energy include those related to the Home Energy Rating System (HERS), Building Performance Institute (BPI) and Weatherization Assistance Program (WAP), this approach suggests establishment of some common core requirements and yet maintains the viability and differentiation of existing platforms.[1]

7. Would Vermont be at a disadvantage by not including any reference to the DOE Home Energy Score (1-10)? The 1-10 score lacks some of benefits of MMBtus/year as a meaningful metric that corresponds to actual usage and does not change over time. Moreover, it goes in the opposite direction to HERS (a high score is better/more efficient in the DOE HES, whereas in HERS, 0 is best/most efficient. Do the advantages of a national score outweigh these potential drawbacks?

The current draft labels are specific to VT (homes, energy/fuel costs) and we think it would be confusing to include DOE's HES on the same VT label however as the HES is currently being revised it certainly shouldn't be discouraged as an alternative label option. NEEP would advocate that the working group pilot test HES and work with DOE to make any Vermont specific modifications. Using a standardized assessment tool developed by DOE and Lawrence Berkeley National Laboratory would not only help create consistency in the marketplace but save Vermont the added financial burden of developing and maintaining their own rating system.

[1] NEEP excludes the US Green Building Council's LEED program from this list because, although inclusive of energy, it does not demand energy efficiency improvements and allows alternate paths to satisfaction of its broader sustainability objectives.

8. This effort is focused on single-family homes. What are the considerations as Vermont seeks to develop an approach to building scores and labels that could eventually apply to multifamily and commercial buildings (which will be considered by a Working Group in 2014)?

Energy benchmarking and disclosure is a reasonable and effective way to address the energy use of buildings because it is a market-based approach that creates incentives for builders, owners and tenants. With this NEEP suggests this effort should be expanded to include multi-family and commercial buildings. Many jurisdictions such as New York City, Austin TX, Washington D.C. and most recently Boston, MA have include these types of buildings in their building energy rating ordinances or legislation.

Conclusion

In conclusion, we want to extend our appreciation to Working Group for undertaking work in this area and for the opportunity to share our comments. It is our firm belief that building energy disclosure and labeling policies can effectively support market valuation of energy efficiency, improve stakeholders' ability to assess the energy performance of their assets, and act as a powerful complement to more conventional incentive programs. Please let us know if you have any questions or if we can be of assistance with Vermont's energy metric and label options.

Sincerely,

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September 4, 2013

Kelly Launder
Public Service Department

Sent via E-Mail

Dear Ms. Launder,

Renewable Energy Vermont (REV) provides the following feedback regarding the "Proposed Home Energy Score and Label" currently under development as required by Act 89.

First, REV would like to commend the thoughtfulness that has clearly gone into this proposal – from the selection criteria regarding an asset-based estimate as opposed to previous usage, and also regarding the graphic displays.

Regarding the questions asked by the Working Group:

1. *What is your intuitive reaction to the energy label designs? Are they easy to understand? Confusing? What do you like or dislike?*
2. *Do you prefer a simpler label…?*
3. *What should the energy score(s) be called…?*

REV will answer these three questions collectively and via bullet form:

- It is suggested not to use the term "your" for a number of reasons. First, if the time during which the labels will be used is at point-of-sale, it is more appropriate to call the building "this building", since the term "yours" may not be accurate. Second, this removes some of the potential for placing building owners on the defensive by distancing the owner from the building.
- The terms "Building Energy Estimate" and "Energy Use Intensity" are not intuitive. A title along the lines of "This Building's Energy Use per Year" for "Building Energy Estimate"; and "This Building's Energy Use Compared to Similarly Sized Buildings" is, although more lengthy in words and not eloquent, clearer. The "Energy Cost by Fuel" is a challenging label. Certainly it is a label that interested buyers would want to know. But what

will it capture? If the energy cost is very low because the home has already been fully weatherized, has an air source heat pump with a biomass pellet system, and solar panels that provide electricity to the home but also charge a car, then perhaps the energy cost is low, but there may be PACE loans that are currently assessed to the property – teasing out these costs may prove challenging.

4. *The Working Group is seeking to develop an energy metric and label that can complement HERS ratings…?*

Is it possible to develop a conversion factor such that the Energy Label used can be calculated to serve as a proxy for the HERS rating? Or, perhaps the more accurate action (though perhaps more difficult to implement?) would be to update the MLS so it incorporates for this new label.

5. How should the energy score treat renewable energy systems, such as solar photovoltaics (PV) and solar hot water? Should the MMBtu/year usage be calculated net of on-site renewable energy production?

Both on and off-site renewable energy production needs to be counted within the energy rating – be it PV, solar hot water, geothermal, biomass (and, yes, there are a very few number of homes with small dams – but this could be left out of the equation given the low saturation of homes that utilize this technology). Energy production for PV should be based on a readily available downloadable model such as PVWatts. The Renewable Energy Resource Center has a few varieties of spreadsheets for calculating estimated savings from solar hot water systems, or another approach could be utilized. To not include the energy production from these systems will present an incomplete picture of the energy use of the building. Finally, if a homeowner is involved in a group net-metered system, and if that ownership is going to remain with the home (as opposed to the homeowner), then this too should be captured.

6. Who should be able to deliver…minimum training?

Yes, there needs to be a standard by which the people testing the homes for these labels are held accountable – otherwise the label runs a risk of not having any value. And this requires training. However, given that there are currently at

least three sets of contractors that work in buildings (weatherization professionals/fuel dealers/renewable installers), it would be suggested that training opportunities be provided annually to all building professionals mentioned above. I am unclear as to the level of training required – but ideally the labeling could be covered within a day long course, if possible. Clearly, this is not the level of a BPI certification (weatherization), or a NABCEP (solar electric) certification.

7. Would Vermont be at a disadvantage by not referencing DOE Home Energy Score…?

From a policy perspective for the state and utilities, perhaps this would be a disadvantage to not reference the DOE score. However, most Vermonters likely do not even know the DOE Score exists. So, if the determination of the Working Group is to use one of the labels provided for comment, then move forward with that effort and address any future impacts regarding using different scoring approaches between Vermont and the DOE, when they arise.

REV offers a few additional comments:

(a) It is REV's, and many others, perspective that the bulk of our future energy needs will be met through increased electrification (for REV, this should be renewables). For example, expecting to see single family homes employ weatherization and a mixture of air source heat pumps and biomass for heating, while expecting to see more home owners shift towards electric vehicles. REV is curious as to the selection of using MMBtus', if we are likely to see increased electrification on the whole, and therefore perhaps Watts would be more appropriate?
(b) It is REV's vision that ultimately we move towards as carbon neutral as possible. Without a doubt, efficiency and conservation are critical steps to moving towards carbon neutrality. But we question some of the verbiage in the document (such as in the side bars of the diagrams that highlight the word "efficiency") – is this really the end goal of what is trying to be accomplished? To make the home more efficient according to today's technology? Or is the end goal assisting homeowners to reach a carbon neutral home with, ultimately, a low energy cost once systems are paid for? If it is the latter, then the language in the label need to be reviewed again

as to whether they are focusing on efficiency, or whole building energy consumption and use – or, carbon neutrality.

Thank you for the opportunity to provide comments. Please do not hesitate to follow up with additional questions.

Sincerely,

Gabrielle Stebbins

Executive Director

TO: The Vermont Home Energy Score Working Group

Thank you for the opportunity to comment on your proposal for developing an energy metric and label for homes in Vermont. DOE congratulates the State's achievements in advancing the comfort, performance, and energy efficiency of Vermont's homes through Efficiency Vermont's Home Performance with ENERGY STAR program and other efficiency programs in the State. And, we applaud your efforts to tackle the challenge of home energy scoring and to develop a consistent approach for efficiency programs and real estate efforts statewide.

The discussion below highlights our primary recommendations. We would be glad to discuss them at your convenience. We hope to work with the State as it finalizes and implements its approach for scoring homes.

Best regards,

Joan Glickman
Program Manager
Home Energy Score & Commercial Building Energy Asset Score
U.S. Department of Energy

(1) Use only one calculation method to score homes

We urge the State to select one calculation method for scoring homes to ensure more consistent scoring across homes. Multiple software tools can generate audit reports, recommendations, and even the home energy scores; however, all of these tools should rely on the same calculation methodology and engine.

Furthermore, the State should institute a process by which different tools consistently use the selected calculation method. This type of process can be achieved thru the use of application programming interfaces (APIs); however, some type of testing of the APIs is still required to ensure that the different software tools consistently pass information to the calculation vehicle.

(2) Use the Home Energy Scoring Tool as the basis for generating Vermont's home score

The Home Energy Scoring Tool offers a wide range of advantages including the following:

- It is non-proprietary, transparent (well documented), and free.
- It has been widely tested and performs as well or better than other energy modeling software.
- It generates recommendations for cost-effective improvements and estimates annual utility cost savings. The assessors who score the homes can override the Scoring Tool recommendations and provide their own should they choose to do so.
- It generates a "score with improvements" which can be included or not in the information provided to the customer at the assessor's discretion. The assessor can generate the "score with improvements" in two ways – either reflecting the improvements recommended by the Scoring Tool or those improvements recommended by the assessor. The "score with improvements" provides a useful message to the homeowner or homebuyer in that it demonstrates the home's potential.
- It estimates total energy use for the home under standard operating conditions, energy use by fuel type, and can also be used to estimate annual utility costs (this feature will be added in 2014). Any or all of these values can be shown to the user in a format that is customizable by the State.

(3) Select a scale that is easily understood by homeowners and homebuyers and easily incorporated into multiple listing services

While an absolute scale showing MMBTUs has benefits as noted in the Vermont proposal, it is not easily understood by consumers and does not allow easy comparison among homes. DOE has consistently received positive feedback regarding the understandability of the 10 point scale. It provides a simple way for homebuyers to compare homes. A home's score should be able to stand on its own, without complicated graphics, reference points, and other explanations that are unlikely to be provided to homebuyers on a consistent basis.

(4) Layer and tailor information for the intended audience

Many studies have shown that "less is more" when crafting a message to consumers. To that end, we recommend using one primary graphic with a simple scale (e.g., 10 point Home Energy Score scale). We do not recommend multiple graphics with different metrics.

While simple is likely best for most users, some programs and some consumers may value more specific information and metrics. Information can be layered as well as tailored for different audiences and circumstances (e.g., point of sale, existing home audit), with more detailed information provided in supplementary materials.

(5) Create a system that meets the needs of existing and new homes

Given that many realtors, buyers and sellers in Vermont already use HERS ratings for new homes, we recommend continuing to use the HERS metric for that portion of the market. That said, a HERS rating is costly to generate and not particularly relevant to existing homes, in that it uses IECC 2006 energy code as its baseline.

The Home Energy Score can be generated at a much lower cost and also uses a simpler scale that applies more readily to existing homes. The Home Energy Score can be used on any home – existing or new; however, home builders will likely continue to use HERS, given its greater level of granularity, and its ability to help distinguish highly efficient new homes from other new homes.

While having two rating systems in the marketplace may lead to some confusion, we believe that new and existing homes are different and therefore different rating systems can be used to highlight their specific energy-related characteristics. Given that the HERS scale and the Home Energy Score are completely different (i.e., 10 points vs. 150 or more points on the HERS scale), consumers are unlikely to interchange or confuse the two. The fact is even the most energy efficient new homes score above 50 on the HERS scale, so consumers will likely be able to understand that different scales are used for new vs. existing homes.

(6) Help DOE determine how to best account for renewables in the Home Energy Score in 2014

The Home Energy Score plans to incorporate renewables in 2014; however, DOE is still undecided as to how to account for renewables in its scoring system. Should Vermont elect to use the Home Energy Score, DOE would welcome the State's input and involvement in determining how to address this important issue.

(7) Require testing of assessors as well as quality assurance to help ensure scores are credible and consistent

A scoring program must include training and testing of assessors as well as quality assurance requirements. Should Vermont elect to use the Home Energy Score, the State can take advantage of DOE's infrastructure for training and testing. The State is welcome to institute its own requirements, as long as the DOE minimum requirements are met.

The Home Energy Score currently requires assessors to be certified as BPI Building Analysts or HERS Raters. The program also requires assessors to pass a free on-line exam. All assessors are also subject to having homes rescored at random through quality assurance programs currently provided by Home Energy Score Partners.

DOE is in in the process of testing whether 3-D simulation training and testing, currently under development, is sufficient to evaluate an assessor's qualifications to effectively score homes. Depending on the results of this analysis, DOE may revise its assessor requirements in spring 2014. The program may change requirements for certification, quality assurance, and/or new mentoring among other modifications. DOE is working to set requirements such that the integrity of the scoring program is maintained, without limiting program participation by other professionals (e.g., home inspectors) should they qualify.

(8) Use DOE's Commercial Building Energy Asset Score as the basis for developing Vermont's energy scoring method for multifamily and commercial buildings

DOE is in the process of testing its Commercial Building Energy Asset Score (Asset Score). As appropriate, DOE is applying the same fundamental approach and principles to both the Home Energy Score and the Commercial Building Energy Asset Score. Both are subject to significant analysis and benefit from ongoing input from outsider users (e.g., Home Energy Score Partners, Asset Score pilot participants).

As with Home Energy Score, the Asset Score program offers a free, non-proprietary software tool to generate a score as well as accompanying report. DOE welcomes Vermont's involvement and input as DOE continues to improve the Asset Score program and Asset Scoring Tool. The Asset Score can be applied to a wide range of commercial buildings, including multifamily structures. It also features a link to Energy Star Portfolio Manager to encourage a comprehensive energy efficiency strategy for building owners, operators, and investors.

(9) Link to the national approach for scoring homes

We urge the State to use the Home Energy Score as its primary score or at a minimum as one piece of information provided in the State's home energy scoring and labeling program. Being part of this national program provides a wide range of benefits. In addition to the benefits stated above, the following are some reasons to tie to the national program.

- Through adoption of the Home Energy Score, Vermont can be part of a national effort to transform the existing homes market across the U.S. Individual state programs with completely different metrics and methods will lead to greater market confusion, and significantly reduce the chance for real market transformation. Vermont can help bolster a national product that will transport across borders and push market transformation in New England and nationwide.

- The Home Energy Score program allows the best of both worlds: being part of a national effort while having the flexibility to customize information to meet the State's specific objectives.

- The Home Energy Score program is committed to continuous improvement, as evidenced by tool updates and ongoing analytical efforts, including current evaluation studies that benefit from the involvement of behavioral science experts from the nation's leading institutions (e.g., Yale, Harvard). Vermont can benefit from this work as well as provide input into future efforts to strengthen the national Home Energy Score.

- DOE is working to integrate the Home Energy Score into other federal programs, including links to other efficiency programs and financing incentives (e.g., FHA and VA loan processes).

- The Home Energy Score program has already put into place training, testing, marketing materials, and other resources that our Partners can adopt and/or customize to meet their local needs.

- Although some scales (e.g., MMBTUs) can go unchanged over time, DOE expects to define the Score such that updates will not be necessary for more than a decade. If and when changes to the scale are made, the Home Energy Scoring Tool has the capability to re-score all homes without requiring additional data input.

Dear Kelly,

The Department of Housing and Community Development at the Agency of Commerce and Community Development applaud the Workgroup's effort to transmit consistent, standardized data about energy efficiency features in existing homes so that these features can be taken into account by realtors, buyers, appraisers, lenders, and others during the home sales transaction. We also understand the focused nature of the task; however, it misses an opportunity to help consumers consider the cost of location when choosing a place to live.

The true energy cost of housing is home + transportation energy. Studies have shown that transportation accounts for as much as 30% of a building's energy use and transportation is the second largest expense for Vermont families.

Likewise, please consider the policy implications of an energy label that rates a new, tight 4,000 SF McMansion, 25 miles away from a town center more highly than 1,500 SF historic building with old windows, located in a downtown that within walking/biking distances to jobs, goods and services.

The location of housing—and the type of transportation options that it supports (public transit, biking, or pedestrian options)—dramatically affects its energy use. By excluding location/transportation costs in the energy label -- we miss an opportunity to educate the public on the cost of location – individually, and collectively--as we work together to reduce our emissions.

Excluding the cost of transportation also undermines other state goals to concentrate growth in centers, to maintain and protect air and water quality, to promote investment in older and historic buildings, as well as state and local governments' ability to finance and maintain the supporting infrastructure of schools, utilities, street networks, and police, ambulance and fire protection.

If you have not seen it, I encourage you to check out Walk Score. While far from perfect in Vermont, it's one simple way to note the cost of location in your energy rating. Another locational tool for consideration is the Center for Neighborhood Technology's Housing and Transportation Affordability Index. Both provide an off-the-shelf resource that could easily be added to your label or used as the basis for creating a Vermont-based rating system.

A total energy score that provides easily ratings for the building and transportation energy separately along with a total score would provide the total picture to raise awareness, showcase the benefits, and support the goals of the Comprehensive Energy Plan.

Thanks for the opportunity to comment, we are happy to meet and discuss these and other ways to provide more meaningful energy ratings for homes in Vermont.

Sincerely,

Noelle MacKay

Noelle MacKay, Commissioner
Agency of Commerce and Community Development
Department of Housing and Community Development
One National Life Drive Deane C. Davis Bldg, 6th Floor
Montpelier, VT 05620-0501
Phone: (802) 828-5216
Fax: (802) 828-2928

Interested in learning more: http://accd.vermont.gov

From: Campoli, Gina
Sent: Wednesday, September 04, 2013 4:01 PM
To: Launder, Kelly
Cc: Minter, Sue; Cole, Chris; Segale, Joe; Hopkins, Asa
Subject: Proposed Home Energy Score and Label

Hi Kelly:

Thank you for the opportunity to comment on the proposed *Home Energy Score & Label August 12, 2013* document. VTrans became aware of the efforts to develop a home energy performance rating system in the last couple of days. We hope these comments are the first step in a larger conversation about residential energy use and transportation.

For several years now energy efficiency interests such as the LEED program and those working to decrease energy use in the transportation sector and increase transit use and biking and walking have raised the issue of *locational efficiency*. The concept is pretty simple. Homes that are located near jobs and essential services usually in compact mixed use areas means residents make shorter vehicle trips and burn less fuel and opportunities to walk and bike and the potential for transit services rather than single occupancy vehicle trips are enhanced.

In Vermont, as you know 35% of the energy consumed is for transportation with 29% for residential energy use. 47% of the state's greenhouse gas emissions are from transportation. Vermont has the 10th highest VMT per capita nationally due to the state's dispersed land use patterns. (VMT is a measure of the total vehicle miles traveled in an area's transportation system.) The state will not be able to reduce transportation energy consumption and GHG emissions without the public better understanding the energy consumption consequences of dispersed land use patterns. The Vermont home energy score is an excellent place to start.

A Vermonter may choose to live in house that is ranked very low in terms of Btus consumed as described in the scoring system, but if the location of the house is far from jobs and services and requires long daily trips and vehicle technologies - such as high mpg for 4wd - that are inefficient in order to provide year round access the house's remote location - then the house's physical characteristics are not energy efficient when compared to a dwelling in a compact mixed use setting.

VTrans would like to work with you and the others involved in the scoring system to develop a simple locational efficiency score for Vermont. There are tools available nationally that merit further investigation. A simple scoring system based on proximity to identified growth centers or bonus points for homes located in places where there are transit service and/or high walk scores are possible approaches to pursue.

Thanks again,

Gina Campoli,
Environmental Policy Manager
Vermont Agency of Transportation
Policy, Planning, and Inter-Modal Development Division
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802-828-5756
802-793-5226 (mobile)

VERMONT FUEL EFFICIENCY PARTNERSHIP

VT Weatherization: BROC - CVOEO - NETO – SEVCA / Efficiency Vermont / VT Housing & Conservation Bd

a project of Central VT Community Action Council vfep.org / 802-477-5092 / 20 Gable Pl, Barre VT 05641

August 16, 2013

To: Home Energy Score Working Group

From: Scott Campbell, Administrator

RE: Vermont Energy Score Summary

Thank you for the opportunity to comment on the proposed scoring methods and presentations.

My comments come from 12 years as a local Weatherization program director and 4 years administering a statewide multifamily energy retrofit incentive program. I created a heat-loss-based audit tool and savings estimator which has been approved by US Dept of Energy as a multifamily tool for Vermont Weatherization agencies. I have been thinking for many years about useful metrics and how to present them to building owners.

I appreciate the effort that has gone into developing the four options, and there are aspects to like about each. Simplicity is good. But more than superficial information is needed.

Everyone in this industry knows energy use in buildings is a complicated interplay of many factors. Macro- and micro-climates have an influence; disaggregating space and DHW usage is problematic; the better the building enclosure, the more important DHW usage is; and the occupants trump everything.

Can a label show enough information? Anything that purports to provide useful, comparable information to consumers has to include relevant details –

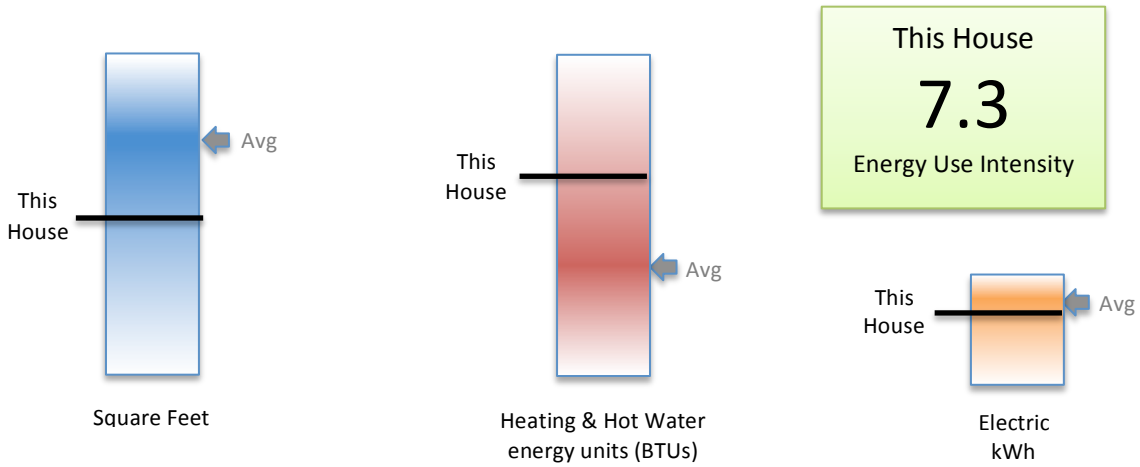
- Building type, (for single-family) number of bedrooms
- Location of building (town, exposure)
- Size of building (finished living area)
- What the score is based on: energy modeling, or historical usage (with dates)
- Number of occupants (assumed or actual), and whether family or elders
- As a consumer, I would also be interested in data currently on the MLS sheet: heating and DHW fuels (and current prices); heating and DHW equipment

Not only that, but every energy metric we could use has pluses and minuses.

So while simplicity is good, I think a *comprehensible* display that reflects the complexities is better. Maybe this is really a one-page report card, rather than a sticker-like label.

I realize you are not really soliciting other ideas for graphics, but nevertheless I think I should try to illustrate the level of detail I am suggesting.

Single Family, 3 Bedroom



Based on: [Energy modeling / Past use (period)]
Location [town, exposure]
occupants [modeled / actual], type [family / elder]
Heating: Fuel, $/unit. [hot water / hot air / space heat]
Hot Water: Fuel, $/unit. [off boiler / standalone tank / on-demand]
Solar provides XX% of [hot water / space / electric] use
Energy Use Intensity is Annual BTUs / Square Feet / Heating Degree Days

where gradient in each bar illustrates distribution of data for each building type;
size of Electric bar shows relative cost compared to Heating & Hot Water;
"Energy Use Intensity" metric includes Heat & Hot Water; reflects that Vermont is heating-dominated climate, with widely varying subclimates (could be expressed as kBTUs/SF, but that doesn't reflect climate);
could add scale numbers or "Best/Worst" to bars, and/or SF/BTUs/kWh figures to detail;
could add Cooling bar as needed.

Again, this is off the top of my head, and I'm sure you collectively have considered many of these points. It's hard to strike the balance between too simple and too complicated, but I think it lies in simple presentation with deeper layers of information embedded. Good luck!

Hi Kelly,

Thank you for the opportunity to comment on the proposed Vermont Home Energy Score. VGS has been an active participant with the working group since inception and has provided input along the way. Given this, VGS would like to express our support for Option 1 of the three proposed labels.

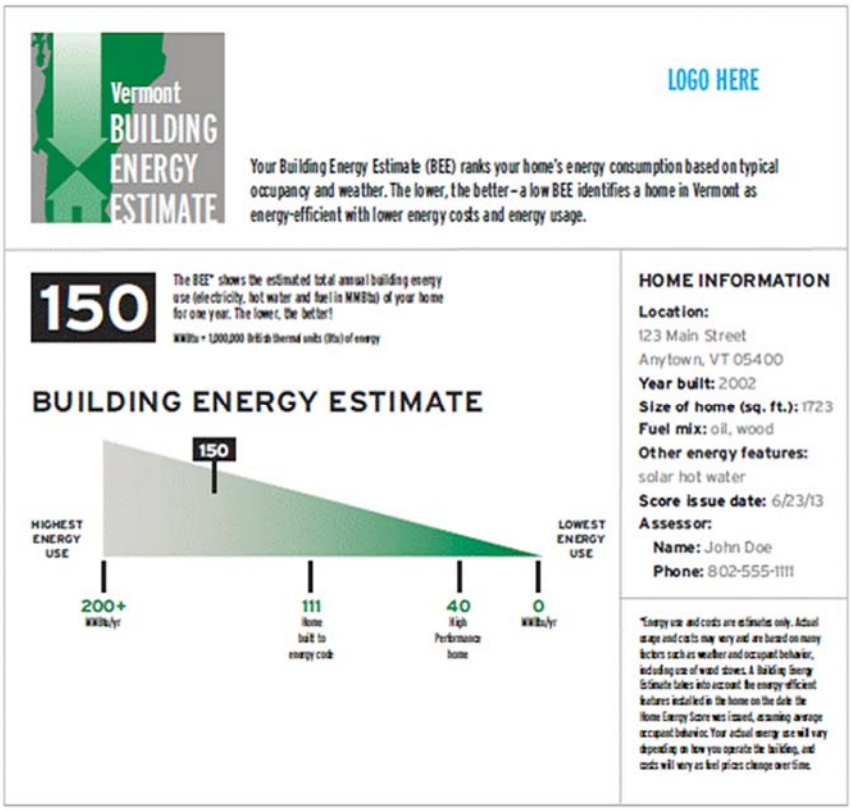
VGS agrees that this building energy score estimate should apply to single family detached homes and upon further refinement and discussion potentially apply to multi-family homes of a particular size and configuration.

VGS believes that this tool would help enhance the customers ability to make an informed decision about the potential energy intensity of the home they may be purchasing or already inhabit. It is our belief that Option 1 is simplistic enough to steer the customer in the right direction to make a reasonably informed decision of what the next steps might be in regards to decreasing their energy intensity. We do not want this tool to be interpreted as a replacement for a comprehensive audit and thus having customers making capital decisions based solely on the score. We believe that this score should be interpreted as a tool that initiates further dialogue and future engagement of a BPI professional for a comprehensive audit and subsequent home retrofit. More quantitative data (as listed in Options 2 and 3) without additional explanation by the person performing the score may create customer confusion and drive them away from the process altogether.

VGS also surmises that upon launch of this voluntary scoring initiative, a new fee based market may develop for entities that may want to adopt this as a service they could offer potential customers. These entities could either be stand alone entities or companies who are already engaged in the Building Performance profession. This would help build the state database of homes that potentially could be targeted in future marketing efforts to help achieve the goals in the State Energy plan.

VGS realizes that this scoring tool relies on the Asset based rating (estimated energy use) for the energy estimate, we continue to support the use of the Operational rating (actual energy use via usage history) for Vermont Gas customers who want to participate in having their home scored in our service territory since historical natural gas usage data is readily available to the customer or the entity performing the scoring. While we believe an operational based rating is preferable, using an asset based system for the building energy scoring is a reasonable approach.

Option 1



In closing, VGS is excited about the possibility of offering another great service for our customers in our existing and expanded service territory in the near future. In the interim, we will continue to remain active with the energy score workgroup until this initiative is formally launched.

Best regards,

Scott

Scott Harrington
Manager, Energy Services
Vermont Gas Systems, Inc.
P.O. Box 467
Burlington, Vt. 05402-0467
P: 802-951-0372
F: 802-863-8872

From: Gustave Seelig [mailto:gseelig@vhcb.org]
Sent: Wednesday, September 04, 2013 11:11 AM
To: Launder, Kelly
Subject: RE: Request for Public Comment on Proposed Home Energy Score & Label

Kelly thanks for letting me know about this. My comments are 1. that whatever the metric chosen most people take pride in the buildings/homes they own so I would not only have a measure I would develop a plaque suitable for display for people who achieve something substantial in energy savings and 2. That a display that acknowledges a governmental role in supporting homeowners is both warranted and a useful educational tool. The legislature actually requires that of VHCB when there is signage. Gus

VNRC Vermont Natural Resources Council

Celebrating 50 years

Submitted via email - kelly.launder@state.vt.us

September 4, 2013

Dear Kelly,

Thank you for the opportunity to comment on the proposed home energy score and label.

We strongly support efforts to provide clear and complete information about the full costs of our energy choices, because providing this information helps consumers make decisions and save money. In addition, providing full information about energy costs is a necessary component of catalyzing innovative market solutions to address the energy challenges we face. Both consumer awareness and a broader market of viable options are essential if we are going to meet our energy targets as a state.

Starting a discussion about how our buildings use energy is a good first step towards this awareness. However, because full information is so important, it is disappointing to see that the proposed home energy scores and labels left out a major energy user: transportation. As highlighted in the Comprehensive Energy Plan, transportation accounts for a third of Vermont's energy use and nearly 50% of our carbon emissions. Without including the transportation costs that come along with "using" and owning a particular house, the "energy performance of the building" is not being fully described.

As these labels are currently configured, a highly efficient house may appeal to a consumer from a cost perspective. However, because of transportation costs, the actual monetary (and energy) cost of that highly efficient house could be much different because of its location – i.e., in a neighborhood near jobs, services, and schools, versus in a location where driving is necessary for most daily tasks. Unfortunately, because of this, a building-only label has the potential to mislead the consumer about the house's full energy costs. Unless consumers have complete information, they cannot make informed decisions about true costs and energy use.

The label may also have the unintended consequence of undermining other state policies and investments – for example, it could put historic buildings and older buildings in compact centers at a disadvantage, while giving high scores to newer buildings in sprawl locations, even if the net energy use of the older building might be less due to transportation savings. This contradicts the state's land use planning goals as well as many years of state and local investment in our existing downtowns and village centers.

We recognize that factoring location in to a building's total energy use can be complex, but methodologies exist to do this, and they are improving all the time (the efforts of the Center for Neighborhood Technology, for example). We also recognize that changes in land use patterns, development of new housing choices, and

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providing new transportation options takes time and may seem too daunting to incorporate here. However, it's precisely *because* it takes time and is complex that transportation energy use cannot be left for another day.

We are grateful to the Vermont Home Energy Score Working Group for their efforts – we know that if these were easy problems, they would have been solved already, and we appreciate the time that they and DPS staff have put towards communicating building energy use. We hope that the group will be able to complete its work by considering the very important issue of transportation energy use. If they do, the group's efforts would be supported by integrating people with experience in transportation and land use planning. This issue is important to us, and so we would be glad to offer our time and assistance.

Again, thank you for the chance to comment and please do not hesitate to be in touch with any questions.

Sincerely,

Kate McCarthy, AICP
Sustainable Communities Program Director