



Better Buildings Neighborhood Program Data & Evaluation Peer Exchange Call: Using Home Energy Scoring Systems

Call Slides and Discussion Summary

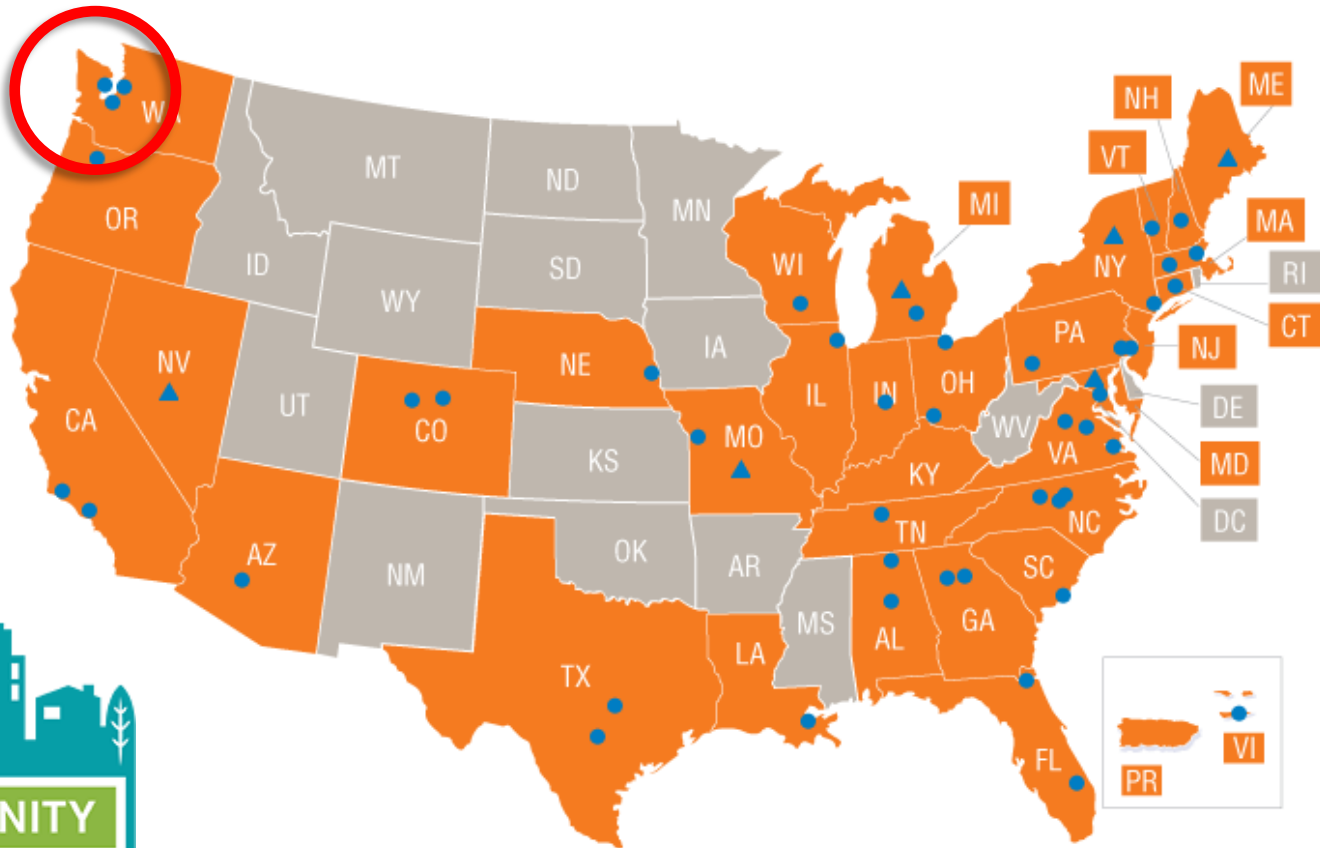
March 28, 2013

- Call Logistics and Attendance
- Discussion
 - What lessons learned, success stories, or challenges have programs had with using home energy scoring systems?
 - What are the advantages and disadvantages of using a home energy score vs. the Home Energy Rating System (HERS) index? What are the advantages & disadvantages as compared to not using a scoring/rating system?
 - What other questions or concerns do you have with using home energy scoring systems?
- Future Call Topics

Participating Programs

- Austin, TX
- Bedford, NY
- Boulder County, CO
- Camden, NJ
- Charlottesville, VA
- Cincinnati, OH
- Connecticut
- Maine
- Missouri
- New Hampshire
- Philadelphia, PA
- San Diego, CA
- Seattle, WA
- Wisconsin

Seattle: Community Power Works



Adam Buick, Community Power Works, Seattle, WA



What is the Energy Performance Score (EPS)?



- The EPS calculation is an asset rating of the home, similar to a miles-per-gallon rating for a car.
- Developed by Earth Advantage Institute.
- Deeply subsidized by Seattle City Light, \$95 cost to homeowner, valued at \$400.
- The EPS has 3 components:
 1. Audit
 2. Scorecard
 3. Recommendation report to guide cost-effective improvements

The Audit

- Performed by a BPI- and Seattle City Light-certified auditor.
- Measures the physical attributes of a home, climate, and different types of equipment and appliances in the home.

These attributes include:

- The home's shape and size
- Insulation levels
- Air leakage
- Heating and cooling systems
- Major appliances
- Lighting
- Hot water heating

Energy Performance Score (EPS)

Energy Performance Score

► Summary of Energy Performance Related Elements



Element	Description	Notes	Current Performance
<small>Very Poor • Poor • Average • Good • Excellent</small>			
Air Leakage How tight your home is against air leaks.	Major leakage areas include: Attic hatch, Crawl space doors, Poor or no weatherstripping at doors, Plumbing penetrations, Fireplace damper	Air leakage is high, there are lots of unfinished trim. Significant leaks from the basement, at walls trim and plumbing.	Very Poor
Ceiling and Attic The amount of insulation above the ceiling or in the roof.	Poorly installed insulation, Blown in, Cellulose	Attic is insulated with cellulose, but not under the floor boards nor over the bathroom's drop ceiling.	Average
Walls The amount of insulation inside the walls.	Blown in, Cellulose, 2x4	Walls have been insulated with blown in cellulose. Areas around windows were not likely insulated. Wall leaked at windows much more than plugs.	Average
Floors The amount of insulation below the floors.	No insulation	No insulation in floors. Air seal and insulated the floors!	Very Poor
Windows The insulation value of the windows.	Single pane	Not many windows, some have been updated. I recommend upgrading the windows in kitchen and Dining room and adding storm windows to the lv. Rm.	Poor

Energy Performance Score (EPS)

Energy Performance Score

► Air Leakage



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P1000493.JPG

Current Conditions Observed by Auditor

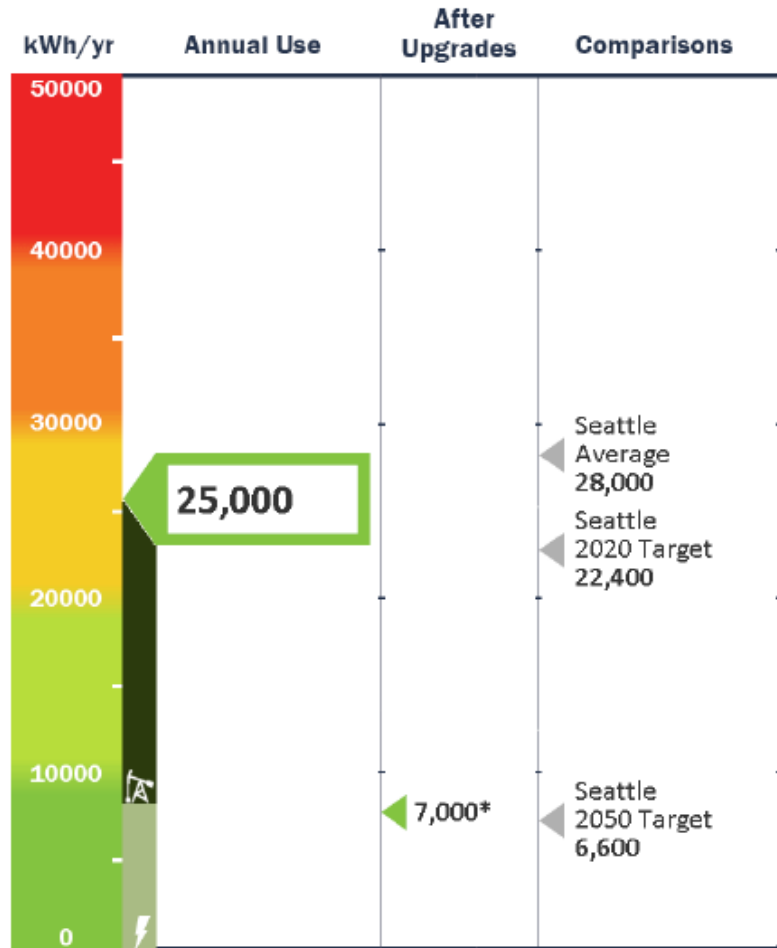
Air leakage is high, there are lots of unfinished trim. Significant leaks from the basement, at walls trim and plumbing.

The Scorecard

- Generated from the information collected in the audit.
- Represents a home's energy use and associated carbon emissions.
- Reflects the amount of energy used on site, but the carbon score reflects source energy.
- Compares a home to the average Seattle home.
- Occupancy, behavior, indoor temperature, and regional weather are standardized to calculate normal energy use. A home's actual energy use will vary with behavior and weather.
- Is a visual representation of a home's performance.

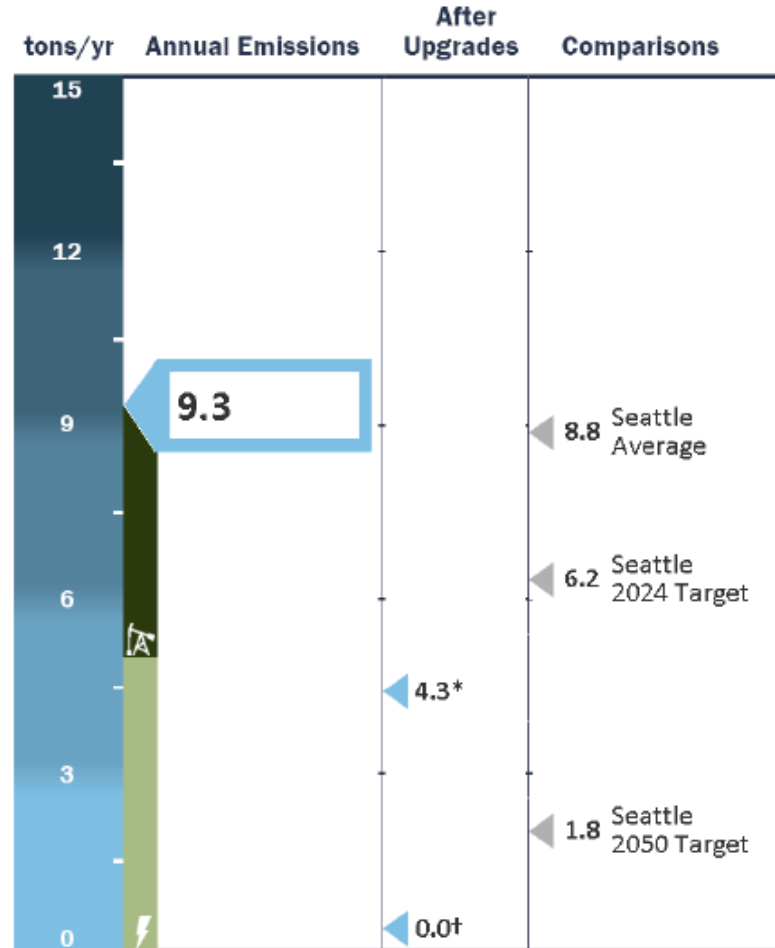
Energy Performance Score (EPS)

Energy Score



*See Recommended Upgrades

Carbon Score



*See Recommended Upgrades
†With energy from renewable sources

Recommendation Report

- Guides improvements in a cost-effective manner.
- Divides recommended improvements into three (3) categories for each element :
 1. Recommended upgrade detail
 2. Deep energy retrofit options
 3. No-cost and low-cost strategies

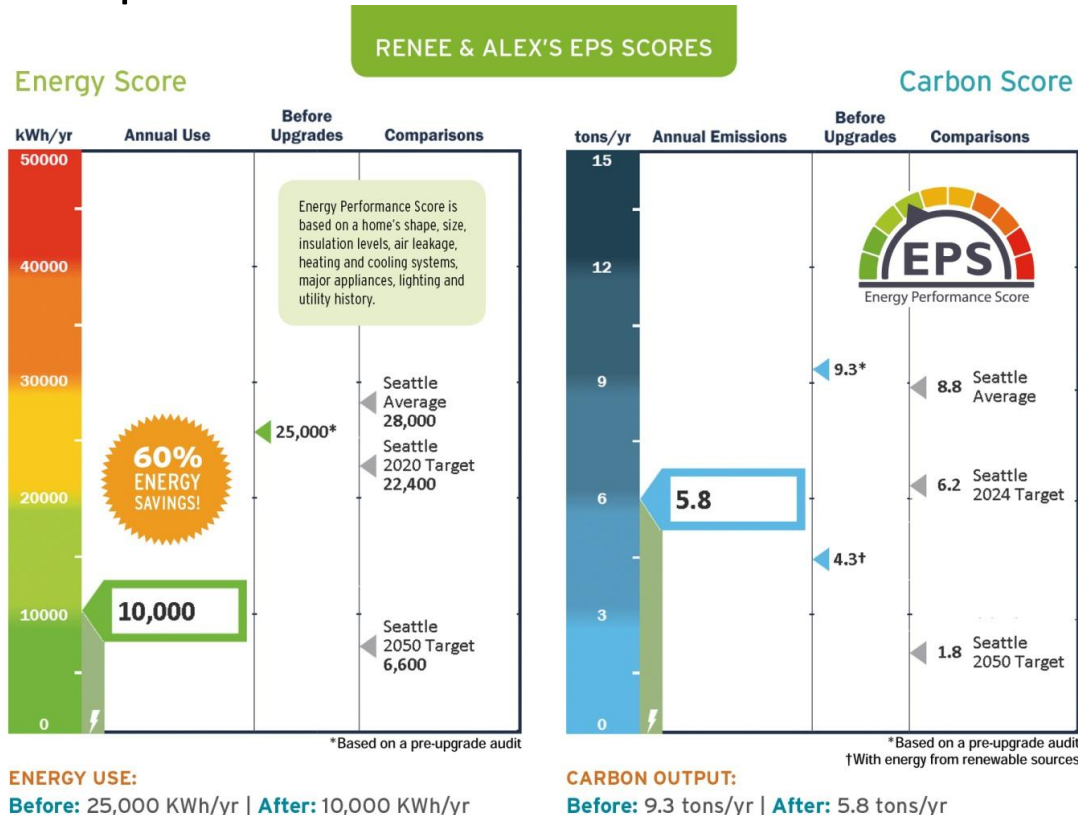
Close your fireplace damper when your fireplace is not in use (but first allow the fireplace to cool completely). If you have fireplace doors, keep them closed.

Put bathroom ventilation fans on a timer or on a humidity sensor which will automatically switch off the fan when the room is dry.

Energy Performance Score (EPS)

Custom Energy Analysis Report (CEAR) Tool

- Generates an Energy Performance Score after the energy upgrade has been completed and verified.



Lessons Learned

- One size does not fit all.
 - Modified tool to better fit our program and customer needs. These modifications take significant time to be developed, tested, and implemented.
 - Many customers do not want (or need) the high level of detail in a full EPS. Contractors, Seattle City Light, and OSE would like to create a tiered audit program.
- Most homeowners still need some level of energy advising from contractors and program staff.

Discussion: Seattle's Experience with EPS



- Utility data is not used—instead, the score is based on home characteristics, occupancy, and average info about behavior.
- Seattle uses kWh, not Btu as units: Participants noted that customers may understand kWh's better than Btu's, and that the utility's rebates are offered based on kWh savings.
- If homeowners in Seattle do upgrades, they are provided with an EPS post-upgrade as well.

Home Energy Score (HES)



- The DOE Home Energy Score allows homeowners to compare the energy performance of their homes to other homes nationwide.
- It also provides homeowners with suggestions for improving their homes' efficiency. More information:

http://www1.eere.energy.gov/buildings/residential/hes_index.html

Discussion: NJ's Experience with HES



- New Jersey performs audits after installing high efficiency furnaces or water heaters so customers can receive rebates, and collects HES metrics (10-15 additional metrics) to produce the DOE HES report.
- NJ provides customers with a copy of the report if they want it (many do not).
- NJ has found that homes over 3,500 square feet do not score well on HES, even if they are more energy efficient.

Discussion: Benefits and Challenges with Consumer Perceptions of HES



- Programs have found that home energy scoring systems require education and handholding for consumers.
 - Consumers often do not understand why homes score poorly on HES after upgrades (e.g., 5 out of 10); it is important to communicate to the consumer that the upgrades they have made are a good first step.
 - NJ offers to review the HES report with the customer and uses the score to motivate additional upgrades and weatherization beyond installing the furnace or water heater.
- Some customers do not want to participate because of the perception of the government collecting data on citizens or because they do not want a “bad” grade.
 - Many customers in NJ’s HES program do not request HES reports for these reasons, although NJ still collects the data.

Discussion: Real Estate Perceptions

- Realtor knowledge and acceptance of home energy scoring systems seems to be low.
 - Both NJ and Philadelphia have reached out to realtors about using HES as an asset in the selling process; Cincinnati will be doing this soon as well.
 - Philadelphia noted that HES is frequently cited as raising a home's value but there is no exact figure for this.
- Programs' have experienced hesitation to use HES in the selling process because:
 - Realtors believe that while it may help sell some houses, it makes other clients look bad.
 - There is a lack of understanding of what a score means to the public and real estate market.
- However, there are pockets of “green realtors” who embrace using HES.

Discussion: Other Audiences' Perceptions of Home Energy Scoring Systems



- Home inspectors may find home energy scores to be a useful tool.
 - InterNACHI, a home inspection association, recently launched a home energy report based off of the HES platform as an add on to their home inspection reports.
- Real estate appraisers are also interested in trying to utilize energy efficiency improvements in valuation of properties, making home energy ratings important for this sector. (Boulder County)

- Key differences between major home energy scoring systems include:
 - Energy Performance Score (EPS) – Proprietary/not public system, scores are estimates of energy use and carbon emissions
 - Home Energy Rating System (HERS) index – National system from RESNET, uses certified raters, index scores of 0-150+
 - Home Energy Score (HES) – National system from DOE, 1-10 scale
- Participants noted that HES is not designed to replace the HERS index score, but rather can be used to motivate additional improvements.

- Several participants noted that for home energy rating systems to be truly effective in the real estate market, there needs to be more education of real estate professionals and the public to drive demand.
- Connecticut, DOE, and Duke University performed a research study with Neighbor to Neighbor participants on the type and level of information provided with HES reports. Preliminary findings include:
 - One size does not fit all situations.
 - People who were in the market to buy homes were most interested in the scores.
 - Public scores (e.g., those that could be found on Zillow or Google maps) were the most influential.

Potential Future Call Topics

- Weather normalizing data (suggested on a previous call)
- Evaluating whether there are actual increases in real estate values from energy efficiency improvements