



# Trends in Home Energy Labeling

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There is a very broad range of characteristics that impact a home's value. Many of these, such as heating systems and insulation, weigh heavily into the energy costs, air quality, and comfort of a home even though they may not be apparent to homeowners or potential buyers. Home energy labeling is a way to make information on these non-observable factors easily accessible to those who want to investigate a home's energy efficiency performance. In addition, having energy labeling data at the time of sale allows potential buyers to use energy efficiency as one of their decision-making factors by providing evaluation of energy systems, a standardized efficiency rating, and customized energy advice for efficiency improvements and monetary savings.

Home energy labeling has a number of benefits which make it a key aspect of ensuring that new buildings meet the highest efficiency standards and that existing buildings are refurbished to reflect these standards. Benefits of home energy labeling programs include:

- Detecting issues with envelopes and heating systems to improve the health and comfort of residents
- Recommending upgrades with the best energy returns
- Increasing the value of energy efficient houses and reducing energy bills
- Accumulating data which will aid policy makers design programs
- Stimulating the home energy employment sector

Two current strategies of home energy labeling include Home Energy Rating System (HERS) Index and the Department of Energy Zero Energy Ready Homes (DOE ZERH) program. Both of these strategies are analyzed using The Home Energy Labeling Information eXchange (HELIX).

States throughout the Northeast have applied HERS ratings as an energy efficiency measure (Figure 1). The HERS rating of any home takes two main elements into account: how little energy a home takes to operate and the amount of clean energy (solar, wind, etc.) that the home generates. Based on these factors, the home is given a score from the baseline of 100. A HERS rating of 100 means that the home meets the current building code standard, 150 means the home uses 50 percent more energy than a new home built to code, and 50 means the home uses 50 percent less than code. Homes with a score of 0 are considered net zero homes. Homes can also be rated a negative score, which means that they generate more clean energy than they draw from the grid.

## Statistics<sup>1</sup>:

- In 2018, there were 236,116 HERS rated homes in the United States.
- In 2018, HERS rated homes produced over \$235 million in annual energy bill savings for home buyers.
- According to calculations, HERS rated homes will reduce carbon dioxide emissions by over a million tons annually (this is equal to 194,017 passenger vehicles taken off the road for one year).

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<sup>1</sup><https://www.resnet.us/articles/demand-for-hers-continues-to-grow-over-236000-homes-hers-rated-in-2018/>

As states implement strategies (such as energy code adoption and benchmarking) to reach carbon reduction goals, HERS ratings will become more and more popular. With an increase in popularity, the average HERS scores will decrease as homes see the long-term benefits of high efficiency. In addition, the DOE ZERH green certification (Figure 2) will become more popular as homes are built to even higher efficiency standards. This certification is granted to high performing homes where most of their annual energy use can be offset with renewables. As states strive towards reducing their carbon footprint and homes implement energy efficiency measures, these two recognitions will become increasingly widespread. The Home Energy Labeling Information eXchange (HELIX) can be used to provide analysis on type, average, and number of different home energy labels across the region, such as these maps below.

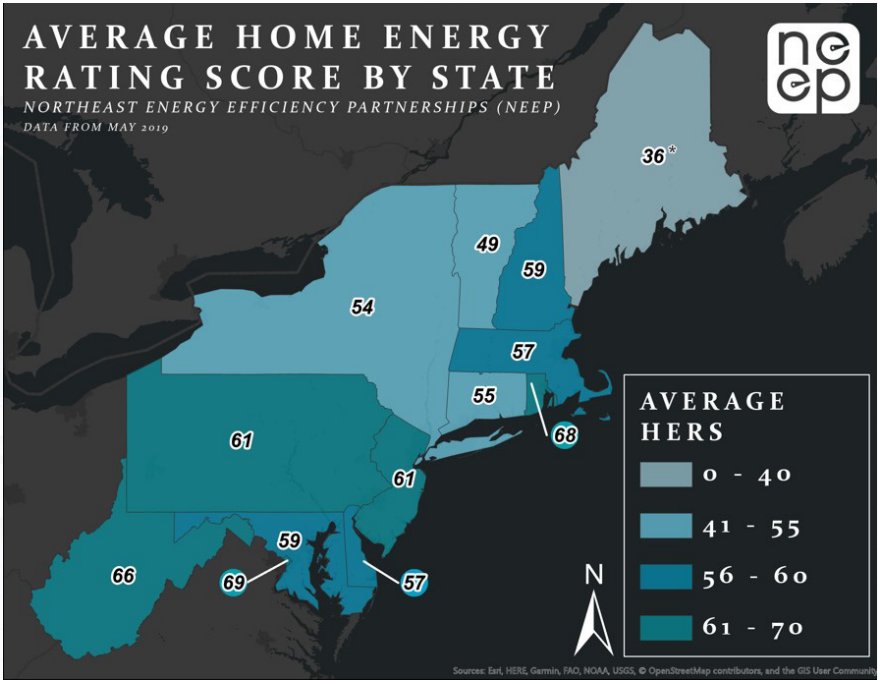


Figure 1: Average HERS Score by State

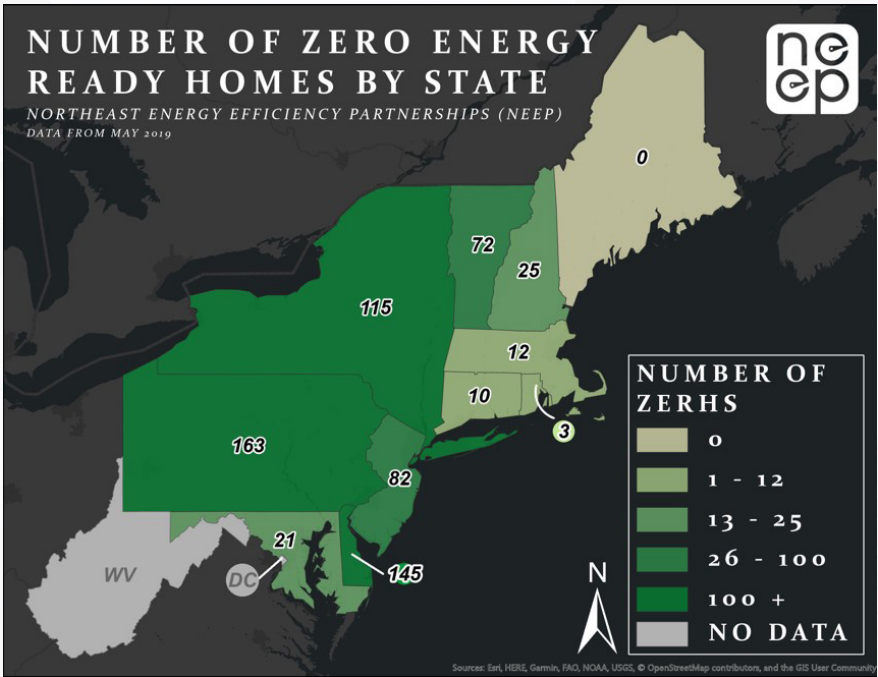


Figure 2: Number of DOE ZERH by State