Energy Ratings for Home Sales

Steven Nadel

July 2025

White Paper

ACEEE

About ACEEE

The **American Council for an Energy-Efficient Economy** (ACEEE), a nonprofit research organization, develops policies to reduce energy waste and combat climate change. Its independent analysis advances investments, programs, and behaviors that use energy more effectively and help build an equitable clean energy future.

About the author

Steven Nadel has been ACEEE's executive director since 2001. He has worked in the energy efficiency field for more than 40 years and has over 200 publications. His current research interests include decarbonization strategies for the buildings, industrial, and transportation sectors; federal, state, and local energy and climate change policy; utility-sector energy efficiency programs and policies; and appliance and equipment efficiency standards. Steve earned a master of science in energy management from the New York Institute of Technology and a master of arts in environmental studies and a bachelor of arts in government from Wesleyan University.

Acknowledgments

This report was made possible through the generous support of the Tilia Fund and internal ACEEE funds. The authors gratefully acknowledge external reviewers, internal reviewers, colleagues, and sponsors who supported this report. External expert reviewers included David Heslam and Maddy Salzman from Earth Advantage and Arbor Otalora-Fadner and Matthew Douglas-May from the Center for Energy and the Environment. Internal reviewers included Stefen Samarripas, Jennifer Amann, and Mariel Wolfson. External review and support do not imply affiliation or endorsement. Last, we would like to thank the following members of ACEEE's editorial and communications team: Kate Doughty, Keri Lee, Mark Rodeffer, Nick Roper, Ethan Taylor, Roxanna Usher, and Mariel Wolfson for their help in launching this report.

Suggested citation

Nadel, Steven. 2025. *Energy Ratings for Home Sales*. Washington, DC: ACEEE. https://www.aceee.org/white-paper/2025/07/energy-ratings-home-sales.

Data and licensing information

Contents

Executive summary

Key findings

- Home energy rating policies (sometimes called home energy labeling policies or home energy disclosure policies) can be useful to inform home sellers and prospective home purchasers about a home's energy efficiency and steps that can be taken to improve this efficiency.
- Successful mandatory home energy rating policies are operating in various cities in California, Michigan, Minnesota, and Oregon, as well as in much of Europe and parts of Australia. Proposals for similar programs are pending in other U.S. jurisdictions. Also, several U.S. states and cities operate more-limited programs that disclose energy costs or efficiency features but do not provide ratings.
- Evaluations of mandatory rating programs find that they increase the sales price of efficient homes (by several thousand dollars) and result in a higher number of home retrofits than would happen without disclosure (e.g., in one case, a 10-fold increase). Higher rated homes also tend to have lower mortgage default rates.
- Voluntary rating programs have very low participation rates and impact. Under voluntary programs, inefficient homes are infrequently rated.
- Home energy rating programs can be implemented with limited staff and at modest cost. Experienced consultants are available to assist.
- We recommend that states and localities enact home energy rating requirements for homes listed for sale. The policies should use easy-to-understand metrics, refer homeowners and homebuyers to programs that can assist with energy efficiency upgrades, and provide free ratings for low-income homeowners.

Introduction

Currently, when people purchase a home, they generally have little information on one of its largest costs: its annual energy bills. For example, a recent article estimated that energy costs are the second largest cost of owning a home—behind mortgage payments, but ahead of taxes and insurance (Grace 2023). Homebuyers can get stuck with an "energy hog" without knowing it. Further, trying to identify high-efficiency homes can be difficult as many energy efficiency features, such as insulation levels, are hidden from the real estate listing and overall transaction.

Many states and communities are interested in spurring energy efficiency retrofits in order to reduce homeowner energy bills and home greenhouse gas emissions. In particular, a substantial portion of home improvements happen just after purchase. The Harvard Joint Center for Housing Studies found that after controlling for age and income, owners in their homes for two years or less spent 39% more than those in their homes for more than two years (JCHS 2025). Relatedly, ACEEE research has found more interest in making energy efficiency investments among households with children and homeowners in the 30–34 age bracket relative to younger and older households (Sussman 2017); these are the types of households that often buy homes. Furthermore, it is often possible to include some money in a mortgage for home improvements, particularly improvements that reduce operating costs. Thus, knowing about energy efficiency opportunities before applying for a mortgage can be useful.

In addition, home improvements are often made just before a home is put on the market in order to improve the home's attractiveness to potential buyers. A 2024 study looked at remodeling projects that increase home value. Although many involve a home's exterior look (such as new doors), installing heat pumps and new windows also made the list of investments with a high return (JLC 2024).

Throughout the United States, approximately 0.1% of homes are weatherized each year (Nadel and Hinge 2023). Only in the most aggressive energy efficiency programs can even 1% of homes be weatherized each year.[1] This rate is much too slow to meet greenhouse gas emissions reduction goals.

To inform potential buyers about a home's energy efficiency and encourage efficiency retrofits, multiple jurisdictions (including Portland, Oregon; Minneapolis, Minnesota; and Berkeley, California[2]) have adopted ordinances to require home energy ratings when homes are put on the market or sold. In addition, a few jurisdictions do not require ratings but instead require disclosure of home energy use or features.

Types of ratings and disclosure

A variety of ratings and disclosure systems are in use around the United States and elsewhere in the world. In this section, we briefly describe the major approaches.

Home ratings

These are systems that provide a numerical rating or letter grade, rating a home relative to others in the local jurisdiction or country. In the United States, the most commonly used tool is Home Energy Score

[1] The very best programs are reaching 1–3% of homes per year; the average program reaches much less (York et al. 2015).
[2] Other jurisdictions with mandatory ratings policies as of this writing are Ann Arbor, Michigan; Bend, Hillsboro, and Milwaukie, Oregon; Bloomington, Minnesota; and Piedmont, California.

(HES), a simple rating tool developed by the U.S. Department of Energy (DOE) that rates a home on a 1–10 scale (10 is best) based on a home inspection that collects approximately 40 pieces of data on the home (DOE 2022; Glickman et al. 2016). The HES is used by cities in Oregon (including Portland); in Berkeley and a statewide voluntary program in California; and in Ann Arbor, Michigan. Another simple scale is a 1–100 scale developed for use in Minnesota, where a "100" indicates a home that has implemented a list of specific energy efficiency measures (as we discuss later in this paper). In Europe, many homes and buildings are rated using an A–G rating scale, with "A" denoting highest efficiency. Somewhat more complicated, the Home Energy Rating System (HERS) rates homes on a 0–150 scale as follows: A home built to the 2006 national model energy code receives a score of 100; less-efficient homes have scores over 100; and more-efficient (often newer) homes typically have scores of 50–100. This system requires a more detailed and expensive energy audit. Both Boulder, Colorado, and Santa Fe, New Mexico, require only new homes to conduct and disclose their HERS ratings (Cluett and Amann 2013).

In each of these jurisdictions, a report must be provided that includes the home's rating, an explanation of the rating, and suggestions for improving the home's rating. Figure 1 shows illustrations of reports for three of these rating systems.

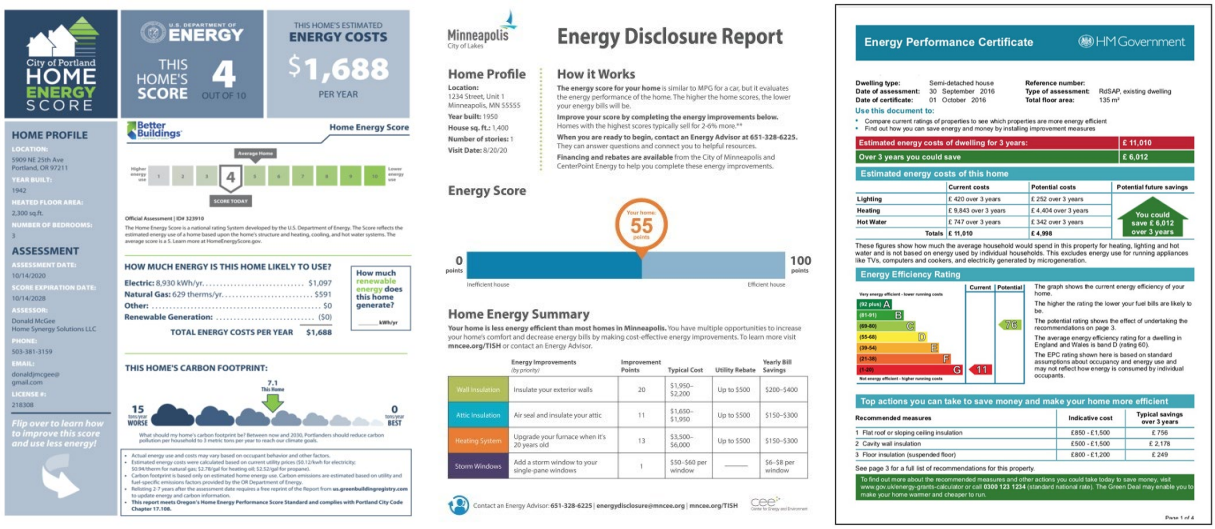


Figure 1. Sample home energy rating reports from Portland, Oregon (left), Minneapolis (middle), and the United Kingdom (right). Appendix A features larger copies of the Portland and Minneapolis reports.

Home energy disclosure

A more-limited option requires disclosure of a home's energy use in a recent year or disclosure of the presence or absence of specific energy efficiency features. Alaska, Hawaii, Chicago, and Montgomery County, Maryland, require disclosure of utility bills to homebuyers (Cluett and Amann 2013). This is a simple form of disclosure and reflects both the attributes of a home and the energy use behavior of its current residents. Also, unlike the ratings discussed above, this information can be harder to compare to other homes due to the influence of home size, energy rates, and user behavior on annual bills. A variation is a requirement in Montpelier, Vermont, where sellers must disclose home energy use information (Montpelier 2025).

Yet another approach, used in Maine, requires that sellers report to buyers a home's energy efficiency features, such as efficiencies of heating, cooling, and water-heating systems; the R-value of insulation;

and the U-value of windows (R and U are measures of how much heat flows through insulation or a window, respectively) (Cluett and Amann 2013). This information can be useful to sophisticated buyers, but these are very technical metrics that many prospective buyers will have difficulty understanding.[3]

Austin, Texas, offers a more complex disclosure program called ECAD (for Energy Conservation Audit and Disclosure), which requires an energy audit before a sales contract is finalized. The ECAD audit reviews the energy efficiency of a home's HVAC system, attic insulation, windows, and weatherstripping, as well as some water efficiency measures; it also identifies home energy efficiency features and provides recommendations for efficiency improvements and information on available efficiency programs. As an alternative to participating in ECAD, homeowners can instead participate in the Home Performance with Energy Star or Weatherization Assistance Programs (both fairly comprehensive energy retrofit packages) or implement three significant energy efficiency measures (Austin Energy 2024).

Cluett and Amann (2013) discuss additional details on these home energy disclosure programs.

Rating/disclosure timing

Typically, home energy ratings and reports must be made available to prospective purchasers at the time a home is put on the market. But in a few jurisdictions, the information may be provided later, such as at the closing or during the option period (the period between offer and binding contract). Providing the label at the listing time gives rating information to all prospective purchasers, but it is one more step that must be taken before a home can be put on the market. Providing the rating at closing time has no impact on the sales process, but it gives the new purchaser information about their new home. Disclosure during the option period provides information to the purchaser before a final commitment is made and can be one factor in final negotiations. In recent years, the trend has been toward requiring the rating at the time of listing to maximize the information's usefulness to prospective purchasers. For example, Berkeley, California, originally required disclosure at the closing but subsequently moved this up to time of listing.

Overview of this paper

In this paper, we provide further information on how home energy rating programs work and their impacts in order to inform policymakers and other stakeholders about the advantages and challenges of mandatory home energy ratings. In the next section, we summarize a variety of research studies on the impacts of home ratings on home sales, mortgages, and renovations. Next, we provide descriptions of the three most extensive U.S. programs—those in Portland, Oregon; Minneapolis, Minnesota; and Berkeley, California.[4] We follow these case studies with a briefer discussion of other U.S. programs and programs in European countries and parts of Australia. We also discuss other relevant research findings. Then, based on findings from the earlier sections, we outline our recommendations for how a program can be structured, address concerns that have been raised about mandatory energy ratings, provide an illustrative estimate of program costs and savings (using a potential program for Connecticut as an example), and summarize our conclusions.

[3] In addition, Kansas and South Dakoma require disclosure of energy efficiency features only for new homes.

[4] These three programs include ratings, some enforcement, and specific facets to encourage installation of energy-saving measures that will improve a home's rating.

Impacts of ratings

Researchers have conducted a variety of studies on the impact of home energy ratings on home sales and renovations. Taken together, these studies show the following:

- Higher ratings result in higher home sales prices.
- Higher ratings result in lower mortgage default rates.
- Home energy rating reports and recommendations appear to spur energy retrofit improvements both before a home is put on the market and after a home is sold.
- In one case, homes disclosing energy use information spent less time on the market.

These findings apply to mandatory ratings; when ratings are voluntary and only a small percentage of homes receive the ratings, these findings do not appear to apply.

We expand on each of these points in the paragraphs below.

Impact on home prices

Studies on Portland, Austin, and in Europe all find that ratings and audits have a significant impact on the sales prices of homes. In a study on the Portland rating program, Breshears (2022) looked at the effect of HES on home sales prices, finding that sales prices increased 0.5% (about $3,000) per HES point.

Similarly, Pigman et al. (2022) studied the impact of HESs on home sales nationwide, but 65% of the data points were in Oregon due to the home rating ordinances in Portland and several other Oregon cities. Using a sample of 26,291 home sales that occurred after HES assessments, they found that a one-point increase in HES in these locations was associated with a 0.5% increase in the sales price (the same as Breshears estimated), while an increase of $100 in estimated annual energy bills was associated with a 0.4% decrease in home sales prices.

Two studies on the Austin program reach similar conclusions. First, researchers from several universities conducted an econometric evaluation of the program, comparing home sales in Austin to sales in nearby communities (Meyers, Puller, and West 2022[5]). They found that homebuyers were willing to spend an extra $1,994–4,535 on a home's purchase price to obtain an expected savings in annual energy costs of approximately $153. An earlier version of their paper expressed the results another way, finding an approximately $19,000 difference in sales price between the most- and least-efficient homes rated in terms of kWh per sq. ft. of floor area and controlling for home vintage (Meyers, Puller, and West 2019).

Second, Cassidy (2023) also looked at the Austin program. She found that a standard deviation[6] increase in less observable energy efficiency measures (e.g., insulation) corresponded to a $5,300 increase in home prices and that each dollar of annual energy savings was associated with a $19 increase in home prices. Both of these findings were statistically significant at the 95% level (meaning there is less than a 5% probability that these findings were due to random chance). Cassidy's research found that disclosure

[5] This citation is for the academic paper, which is more comprehensive. There is also a simpler, plain-language summary of the research by Pullers, West, and Meyers (2020).

[6] Standard deviation is a statistical term; it roughly corresponds to a range between about one-third below and one-third above the average for a distribution.

of less visible energy features (e.g., insulation) is more important than disclosure of visible items (e.g., a solar system).

Likewise, a study in Chicago found that homes that disclosed energy use and costs sold at a slightly higher proportion of their asking price (97.2% versus 95.9%) (Philbrick, Scheu, and Blaser 2016).

Another data point is from a nationwide study by Freddie Mac (Argento, Bak, and Brown, 2020) on homes with HERS ratings (primarily new construction). The study found that rated homes (many of which were high efficiency) sold for 2.7% more than comparable unrated homes, and that better-rated homes sold for 3–5% more than lesser-rated homes. Interestingly, the study found that the least-efficient homes with ratings (i.e., the least-efficient quartile in the ratings) did not differ significantly from unrated homes; only more-efficient homes (quartiles two and higher) showed a correlation between rating and sales price. This same study also looked at existing homes rated using HES and did not find a correlation between rating and sales price, although the sample size was small (most of the HES homes in the sample had not been sold recently). Also, the HES homes in the sample were smaller and older than the average existing home, making comparisons difficult.

Studies in Europe have also found that ratings can increase average selling price (DECC 2013; Santos et al. 2016). Figure 2 summarizes various European studies.

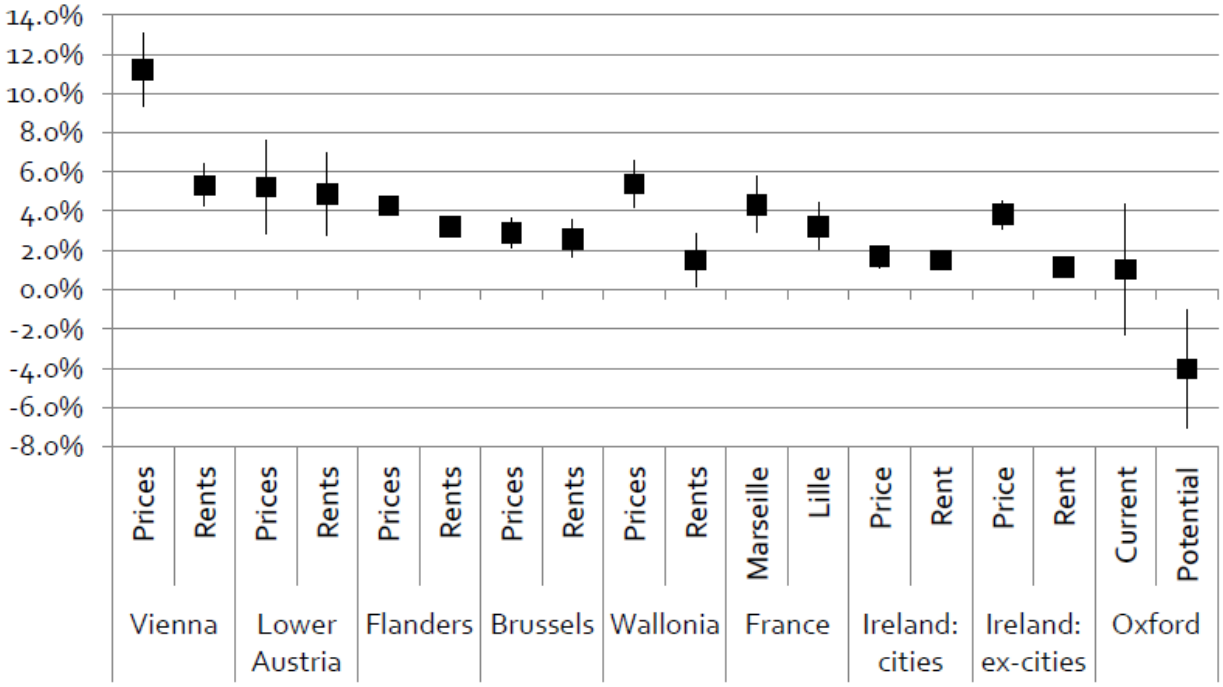


Figure 2. Average change in purchase price or rent from a one-letter or equivalent improvement in home rating across European property markets, showing average effect and 95% confidence interval. The most common European labeling scheme is a seven-letter scale (A–G) (Mudgal et al. 2013). Data for France are for home prices in two different cities. For Oxford, there are two ratings: one on the current home, and one on what the home rating could be with recommended improvement. Higher current ratings increase home price, while ratings based on potential future ratings seem to lower home price for reasons that the authors of this study do not understand.

Impact on mortgage default rates

In addition to looking at the impact of HES on the selling prices of homes, Pigman et al. (2022) also found that a one-point increase in HES was associated with a 5.5% reduction in the odds of a loan going 30-days delinquent if the loan originated after the assessment occurred. Similarly, they found that a $100 decrease in estimated annual energy bills was associated with a 2.3% decrease in the odds of a loan going delinquent if it originated after the assessment occurred. These findings imply that high levels of energy efficiency and lower energy bills mean that, on average, more money is available to pay the mortgage.

The Freddie Mac study referred to above (Argento, Bak, and Brown 2020) also looked at mortgage default rates. For HERS-rated homes (primarily new construction), the average default rate on rated homes was not different from unrated homes. However, for homeowners in the highest debt-to-income bucket, rated homes appear to have lower delinquency rates relative to unrated homes. For existing homes rated with HES, rated homes had slightly higher default rates, although these homes also had higher loan-to-value ratios (more borrowed) and their households had higher debt-to-income income ratios (financially stretched).

Impact on energy retrofit rates

In Portland, the Energy Trust of Oregon (which operates energy efficiency programs in Portland and other areas of the state) examined participation in its programs by HES homes over a five-month period in 2023. A total of 2,331 homes received inspections during this period, and 8.8% of these homes received energy efficiency rebates—primarily for measures recommended in the inspection report. By comparison, the agency found that only 0.8% of non-HES homes received incentives over a three-year period (ETO 2024). Thus, rebates were more than 10 times higher in homes that received HES reports.

In Minneapolis, a review of home energy reports found that 65% of homes did not have adequate insulation, 40% had inefficient heating systems, and 6% had single-pane windows. As of the end of 2023, residences with evaluations have made 1,454 improvements, including 1,018 high-efficiency heating system installations and 436 air sealing and insulation improvements (Otalora-Fadner 2022, 2025).

In Austin, homes in and near Austin are eligible for energy efficiency rebates. Pullers, West, and Meyers (2020) found that home sellers in Austin (covered by the energy audit requirement) were 31% more likely to receive rebates from the utility for energy-saving measures than home sellers outside of Austin (not covered by the audit requirement). Sellers covered by the audit requirement were also 61% more likely to participate in the Home Performance with Energy Star program, which was featured in their energy audit reports. The researchers also looked at homebuyer use of rebates and found this to be 12% higher in Austin than outside Austin, but the effect was small and not statistically significant.

Likewise, multiple studies from other countries, as Hill et al. (2016) summarize, find that a portion of homebuyers implement energy-saving upgrades, following the recommendations in their rating reports (studies indicate 12–37% of buyers influenced, as table 1 shows).

Table 1. Portion of buyers influenced by home energy rating and disclosure

Jurisdiction	Portion of buyers influenced by home energy rating report recommendations
ACT, Australia	15% (Energy Consult 2006)
Austin, Texas	12% (first year of program) (Austin Energy 2011)

Jurisdiction	Portion of buyers influenced by home energy rating report recommendations
France	37% (ADENE 2015)
Netherlands	22% (Murphy 2014)
Portugal	17.5% (ADENE 2015)

Source: Hill et al. 2016

Impact on time on the market

Homes providing energy efficiency and energy use information may spend less time on the market. The Chicago study referenced above (Philbrick, Scheu, and Blaser 2016) found that, on average, detached homes spent one week less on the market when they disclosed energy use and costs; for attached homes, the figure was over three weeks less time on the market.

Impact of voluntary rating programs

Some jurisdictions have enacted voluntary rather than mandatory rating requirements. Where such voluntary systems have been adopted, participation has been low (e.g., 2% of home sales in British Columbia, 0.5% in Nova Scotia) (L. McNutt, director, Dunsky Consulting, pers. comm. to S. Nadel, January 2018). And, despite extensive efforts to promote use of the Chicago requirement to disclose energy bills, disclosure in real estate listings was only 13% (Philbrick, Scheu, and Blaser 2016).

In 2020, Sussman et al. (2020) conducted a study asking 1,538 individuals who said they were planning to purchase a home in the next five years to visit a mock home purchase website. They were then asked which of several sets of homes they preferred. The listings—which included information such as price, bedrooms, and square footage—were presented in a way that researchers could statistically determine the weight of participants' preferences among competing factors.[7]

Some participants saw information about the homes' energy efficiency presented in one of five possible ways: a simple HES based on the DOE rating system; a HES on a continuum (line) from inefficient to efficient; estimated annual home energy costs; estimated annual home energy costs plus a HES on a continuum; or a HES for only above-average homes (simulating a voluntary labeling program).

Using the data on participant preferences, the researchers found the following:

- Energy efficiency information encouraged homebuyers to avoid the least-efficient homes and choose more-efficient ones. Homebuyers with such information clicked on the least-efficient listing less often (23% less), and the most-efficient option more often (14% more), compared to those who did not see this information.
- Presenting efficiency information for only the most efficient listings (mirroring a voluntary labeling policy) was not an effective strategy for encouraging choice of efficient homes.
- Homebuyers valued efficiency most when it was presented as an image depicting the home's efficiency score along a scale from inefficient to efficient (see figure 3).

[7] Specifically, the technique is called a "discrete choice experiment"; rationales and details are explained in their final report.

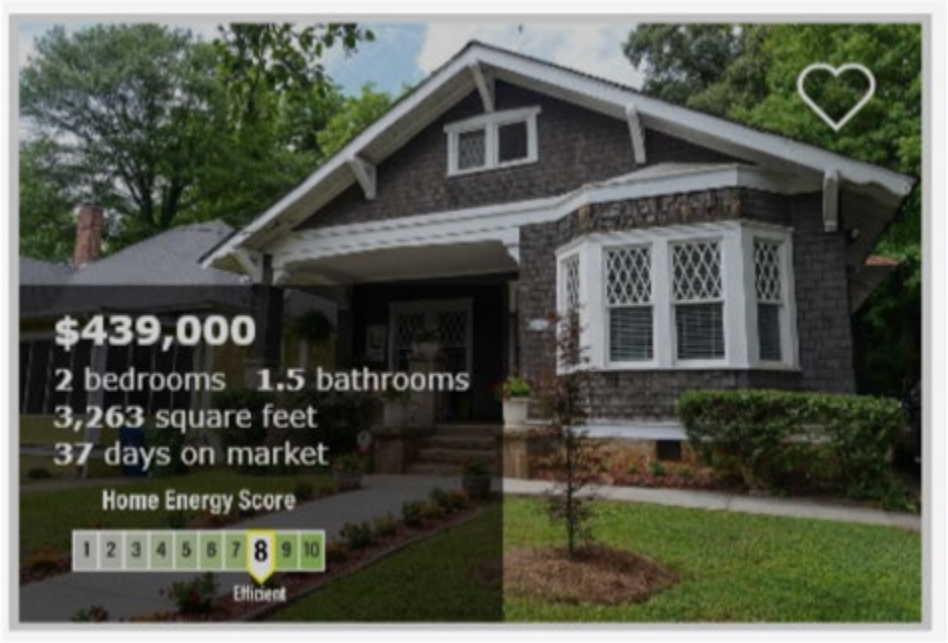


Figure 3. In the Sussman experiment, this sample home listing that showed the Home Energy Score along a continuum was found to drive buyer preferences more than any other presentation form

The report recommended that state and municipal policymakers require efficiency information in all real estate listings and use an intuitive energy scoring system.

Programs in Portland, Minneapolis, and Berkeley

In this section, we discuss the three most comprehensive U.S. programs that might serve as a model for other jurisdictions.

Portland

In Portland, Oregon, the city council unanimously adopted the Home Energy Score Ordinance in December 2016. The program requires all home sellers to obtain a home energy report and disclose the report when listing the home for sale. Appendix A shows a sample home energy report, which includes a score on a 1–10 scale using the DOE HES. To develop the score, a homeowner hires a local certified inspector who conducts an approximately one-hour walk-through of the property, collecting approximately 40 pieces of information on the home.[8] The inspector then issues the report, which includes both the score and a variety of home-specific recommendations to improve the score.

Portland decided to require disclosure at the time of sale so that homebuyers could factor energy performance into their decision-making. To help homebuyers, sellers, and real estate professionals understand these new home energy reports, the city created the City of Portland Home Energy Score

[8] Details on the information collected can be found at: www.energy.gov/sites/prod/files/2014/09/f18/data_collection_sheet_0.pdf.

website (listed in "Links to Program Materials" following the "References" section below). The program began its mandatory phase on January 1, 2018.

In 2020, city staff summarized the implementation experience to the Portland City Council (Portland 2020). More than 20,000 reports had been prepared at an average cost of $125. There were plenty of private-market assessors who could schedule inspections quickly, typically within a day or two. Portland offers to pay for ratings for households with incomes under 60% of the area median; as of the date of the city council report, 80 homeowners applied for the subsidy, which was less than 1% of inspections.

In the first year, the city did not levy fines and had a 52% compliance rate. Late in the second year, it began sending compliance letters noting potential fines; most people then came into compliance within 90 days. In 2022, two academic evaluations of the program were published; some of their findings are summarized in the "Impact of Ratings" section earlier in this paper. In addition, one of the evaluations (Breshears 2022) looked at compliance and found that the city's policy suffered from noncompliance: 64% of sellers obtained an assessment, and 72% of these sellers published the assessment (46% in total). Less-efficient homes were less likely to comply, and experienced realtors were more likely to comply. Compliance problems were in part due to the fact that between spring 2020 and fall 2021, the City of Portland paused enforcement of the ordinance due to the COVID-19 pandemic. Since 2021, the city has delivered warning letters to noncompliant households stating that they could be issued a fine, but in most cases fines have not actually been issued. The program is planning to increase compliance checks in 2025 and to issue fines for noncompliance later in 2025.

Much of the implementation is handled by a local nonprofit organization, Earth Advantage. It has a staff person who puts in an average of two days per week on enforcement, primarily to review each week's new real estate listings and prepare compliance letters for the city to send to households with noncompliant listings. Earth Advantage also performs the DOE-required quality assurance of the scoring activity, which is paid for by per-score fees levied on the HES assessors, who then include these costs in the prices they charge homeowners. Quality control is done either onsite or remotely via data analysis and about a dozen photos of each home uploaded by the inspector.[9] Earth Advantage noted that in 2025, costs of inspections are now running $150–175, which includes a $35 fee for quality control (D. Heslam, executive director, Earth Advantage, pers. comm. to S. Nadel, May 2025).

Earth Advantage also operates the Green Building Registry, a website that automatically pulls in assessment data, produces energy rating reports, and publishes them on an interactive map for public searching. The Green Building Registry is connected to the local Multiple Listing Service (MLS) so that listing agents can upload the report and data fields directly into new listings.

Earth Advantage suggests that the current $500 penalty is not sufficient to compel compliance from some sellers, and that the 90-day timeline is too long to enforce compliance for most home sales in the city. Instead of a flat price penalty, it suggests that penalties could instead be based on a percentage of the sales price so that luxury homes pay more (M. Salzman, head of strategic partnerships, Earth Advantage, pers. comm. to S. Nadel, May 2025). The city and Earth Advantage are working with local energy efficiency programs to encourage adoption of HES recommendations. Energy Trust of Oregon runs local energy efficiency programs. As discussed in the "Impact of Ratings" section, homes receiving

[9] Quality control is to ensure that each assessor follows proper procedures and that ratings between assessors are approximately equivalent.

HES reports were more than 10 times more likely to apply for and receive incentives from Energy Trust of Oregon (ETO 2024).

Since policy adoption, more than 46,000 HESs have been issued in Portland, establishing a dataset of about 28% of the city's single-family housing stock (M. Salzman, head of strategic partnerships, Earth Advantage, pers. comm., May 2025).

Three other Oregon cities (Bend, Hillsboro, and Milwaukie) have adopted a similar law requiring an HES at time of listing, resulting in about one million Oregonians living in a jurisdiction with an HES real estate listing policy.

Minneapolis

Since the housing collapse in 2008, Minneapolis has required a Truth in Sale of Housing inspection before a home can be shown for sale. This must be displayed at all open houses and is publicly available online even after sale on the city's property information site. In the past, this was for a required safety inspection, but in 2019 the city council added a home energy disclosure report to the program. Single-family houses, duplexes, townhouses, and first-time condominium conversions are included. Specifics of the program were developed by a local nonprofit organization, the Center for Energy and the Environment (CEE), which has run energy-saving programs for many years under contract to the city and local utilities. In 2018, CEE conducted a study, *Transforming the Market for Energy Efficiency in Minneapolis*, which recommended residential energy efficiency rating and disclosure using a 100-point Energy Fitness rating that CEE developed specifically for Minneapolis homes (Nelson and Smith 2018). Appendix A shows a sample report; reports include both a rating and recommended steps to improve the rating. It is similar to the DOE HES used in Portland, but this report uses a 100-point scale instead of DOE's 10-point scale, and it is specifically designed for the local rather than the national housing stock. Through 2024, the Minneapolis program focused on insulation and heating systems. A maximum score of 100 denoted homes that had implemented all of the recommended measures in these two areas.

In 2025, the program was expanded to share opportunities for the home to make electrification upgrades to air source heat pumps, heat pump water heaters, electric stoves, heat pump dryers, and electrical panels. Insulation, windows, and heating system remain as the only parts of the home that contribute to the Energy Fitness rating. The electrification upgrades are presented as opportunities not connected to the rating.

The Minneapolis home energy disclosure program is run by CEE under contract to the city. CEE provides free technical assistance and referrals to energy efficiency programs as part of its work helping to implement utility energy efficiency programs. Implementation has included extensive outreach and education for realtors, with a focus on how efficient homes have higher resale value. Over the first year of implementation, 6,200 reports were issued; over the first four years (through the end of 2023), nearly 22,000 reports were issued (Otalora-Fadner 2022, 2025). CEE estimates that the energy disclosure adds $25–100 to the cost of the Truth in Sale of Housing inspection.[10] It did extensive outreach, and it estimates that after about one year of implementation, 95% of homes put on the market received

[10] Local vendors are now charging on the order of $275 for a Truth in Sale of Housing inspection including the energy rating, for example, see www.gadgetinspections.com/minneapolis-tish#:~:text=Pricing%20%2D%20Single%20Family%20&%20Townhomes%20*,*%20$325%202500%20%2D%204000%20Square%20Feet.

reports (Jossi 2021). In part, this high compliance rate was due to the fact that home ratings build on a well-established safety inspection program that had been implemented for many years.

In the first year, 225 buyers reached out to CEE for more information on energy efficiency programs and rebates. The city has also begun to send letters to recent homebuyers with a copy of their energy disclosure reports, encouraging them to contact CEE if they want to make energy improvements (Jossi 2021). As we noted in the "Impact of Ratings" section, as of the end of 2023, residences with evaluations had made 1,454 improvements—including 1,018 high-efficiency heating system installations and 436 air sealing and insulation improvements. Across all the energy improvements tracked, residents saved 31,000 dekatherms of energy, which roughly translates to $272,000 in energy bill savings and 1,600 metric tons reduction of carbon dioxide equivalent (Otalora-Fadner 2022, 2025).

In April 2022, the program was extended to the nearby City of Bloomington after its city council passed an ordinance similar to the one in Minneapolis. Bloomington is also collecting information on current air conditioners and water heaters so that it can potentially recommend heat pump alternatives when existing systems need replacement.

Berkeley

In December 2014, the City of Berkeley, California, passed the Building Energy Saving Ordinance (BESO) to increase transparency about home energy performance. BESO requires homeowners to receive a HES (using the DOE program) and, under the original legislation, to disclose this information at the time of sale. Subsequently, the city moved to require disclosure at the time of listing unless an application is filed to defer the requirement to the buyer and the buyer accepts this deferral. They also allow sellers to install either an energy efficiency or electrification package instead of obtaining a rating.

The Berkeley program is presently operated under an umbrella of the Bay Area Regional Energy Network (BayREN) Green Labeling program, which oversees HES delivery for California's Bay Area. Since 2015, more than 27,000 HESs have been delivered through this effort, which includes over 2,800 scores in Berkeley (representing about 12% of Berkeley's single-family homes) (M. Salzman, head of strategic partnerships, Earth Advantage, pers. comm., May 2025). Berkeley HES reports and data can be found on the Green Building Registry website (referred to in our earlier discussion of the Portland program).

Berkeley has seen positive results since mandatory BESO compliance began in October 2015. In the first year, 921 single-family homes complied with BESO, accounting for 4% of the single-family building stock (Berkeley 2017; Roy et al. 2018). The city is using these scores to encourage homeowners to participate in Energy Upgrade California, a program that provides incentives and rebates for home improvement projects. There is a link to the Berkeley program website in "Links to Program Materials" following the "References" section below.

In April 2025, the city council unanimously passed an amendment to the BESO ordinance that adds a "flexible resilience standard" for 1–4-unit dwellings. This standard requires implementation of energy efficiency measures within two years of a home sale, which is extendable to a third year. A $5,000 cash deposit, split between the buyer and seller, to help cover the cost of compliance will be held by the city through escrow and be refunded in full once the upgrades are complete. Building owners may apply for an early refund of their deposited funds if they supply sufficient evidence, such as issued building permits and a contract for qualifying work, to show that the upgrades will be completed. The specific requirement is to install measures that earn at least six credits (see table 2).

Table 2. Measures and credits for the BESO amendment's flexible resilience standard

Measure	Credit	Measure	Credit
Heat pump water heater	6	Induction range	2
Heat pump HVAC	6	Window replacements	2
Knob and tube replacement	6	Attic insulation	2
Panel upgrade or smart panel	6	Wall insulation	2
Solar PV plus storage	6	Floor insulation	1–2
Duct sealing and replacement	3	Greywater system	1–2
Bidirectional EV charger	3	Air sealing	1
EV charter	2	Prewiring and 240-V receptacles	½ per receptacle

City of Berkeley staff members report that use of data from HESs delivered through the BESO ordinance has helped them to determine the potential impact of this updated requirement. For example, the HES assessment conducted in Berkeley collects information about heat pump adoption and electrical panel amperage, which helped city officials identify credit levels for different types of home energy upgrades. The HES modeling results also helped the city to identify a threshold for giving bonus credits to energy efficient homes (A. Reagon, sustainability program coordinator, City of Berkeley, pers. comm. to D. Heslam, Earth Advantage, December 2024).

The BESO flexible resilience standard will apply to sales of one- and two-unit dwellings after January 1, 2026; two years later, it will apply to sales of three- and four-unit dwellings. If a building has at least one electric heat pump system, then no additional upgrades are required. First-time homebuyers participating in an approved income-qualified first-time homebuying program are exempted from the flexible resilience standard, as are sales of condominiums and accessory dwelling units. Homes with a high HES receive bonus credits, varying with their score, reducing the number of upgrade points needed (Berkeley 2025).

In 2021, Piedmont, California, adopted an ordinance requiring time-of-sale HES disclosure.

Other jurisdictions and studies

In addition to these three major programs, a variety of other jurisdictions either have or are developing programs. In this section, we briefly summarize many of these.

California

The California Energy Commission (CEC) is developing a voluntary disclosure program that will focus on existing homes (CEC 2025). The CEC is now working on a staff report, which will include the results of a small pilot program to estimate home annual use and bills without a site inspection using energy modeling, property tax data, and historic energy consumption data. If the pilot works, it may be expanded to additional homes, working in particular with local governments (W. Vincent, deputy director, Building Standards, California Energy Commission, pers. comm. to S. Nadel, June 2025). In addition, the California Public Utility Commission has authorized a statewide expansion of the subsidized voluntary HES program previously operated only in the Bay Area by BayREN. The new program will be operated by BayREN and StopWaste (Alvarez 2024). These two programs could effectively function as

two tiers: a no-cost first tier based on tax and utility data, and a second tier using HES for homeowners and local jurisdictions wanting more accurate estimates and recommendations on home-specific strategies to improve energy efficiency.

Austin

Austin's program does not provide a numerical rating, but it does require an energy audit roughly similar in scale to the assessment done to produce a HES. The Austin requirement was adopted in 2008 as part of the city's Climate Protection Plan. The program has both single-family and multifamily components. For single-family homes, the law requires that the seller provide an energy audit to the purchaser before the end of the option period—that is, the period after a purchase contract is signed but during which the purchaser can still opt out. The city and its municipal utility have requirements for the audit, including for a "duct blaster" test, as prior work in Austin found that leaky ducts were a major problem (Austin Energy 2024; Cluett and Amann 2013).

The program is coordinated with the local utility (Austin Energy), which runs energy efficiency programs. As we noted in the "Impacts of Ratings" section above, home sellers in Austin covered by the city's audit requirement were 31% more likely to receive rebates from the utility for energy-saving measures than home sellers outside Austin (not covered by the audit requirement). The Austin home sellers were also 61% more likely to participate in the Home Performance with Energy Star program, which was featured in their energy audit reports.

Additional information on the program and lessons learned are available from Austin Energy (2024) and discussed by Cluett and Amann (2013).

Olympia, Washington

Olympia (the state capital) and the nearby jurisdictions of Lacey and Tumwater are considering ordinances to require HESs at the time of listing. The proposed ordinances would take effect in May 2026 and implementation costs would be shared across the three cities (Lorio 2025).

Voluntary rating programs

A few jurisdictions have established voluntary programs to promote HES or alternative rating metrics. There are such efforts in Colorado, Connecticut, Massachusetts, Missouri, New Jersey, Oregon, and Vermont. Some of these efforts were pilots that are no longer operating. The EMPRESS Team (2018) describes these efforts, along with additional information on some of the programs discussed above.

Disclosure of energy bills and/or energy efficiency features

As discussed earlier in the "Home Energy Disclosure" section, Alaska, Hawaii, Chicago, and Montgomery County, Maryland, require disclosure of utility bills to homebuyers. Montpelier, Vermont, requires disclosure of energy use. Maine, Kansas, and South Dakota all require that sellers report to buyers the energy efficiency features of a home (the latter two states require this only for new construction). These programs have no formal evaluations that we know of, except for the Chicago study discussed in the "Impact of Ratings" section. That study found that homes that disclose their energy use and costs sold more quickly and at a slightly higher proportion of their asking price (97.2% versus 95.9%) (Philbrick, Scheu, and Blaser 2016).

The Austin program is a sophisticated form of disclosure, including a fairly comprehensive energy audit with referrals to energy efficiency programs. The program has affected home purchase prices and participation in energy efficiency programs, as discussed above in the "Impact of Ratings" section.

For jurisdictions not interested in home energy ratings, requiring disclosure of energy costs and/or energy efficiency features could be an option; the Chicago and Austin studies show that this could have some impact. And home energy disclosure could be an initial step to lay a foundation for a subsequent rating program. This is what happened in Minneapolis, where the Truth in Sale disclosure provided a foundation to expand the program to include energy ratings.

Additional findings from research on energy rating programs in other jurisdictions

Various other evaluations of energy rating and disclosure programs have been conducted, particularly in Europe but also in other jurisdictions. Some key findings from these studies were summarized by Hill et al. (2016):

- Surveys indicate that energy efficiency is not a top priority in home purchase decisions. Homebuyers choose homes for a variety of other reasons such as location, home and room size, and look. Home energy reports can influence home prices and future renovation decisions, but they seem to have limited impact on which homes people buy.
- Home rating programs play a useful role in reinforcing other community sustainability strategies, including implementation of building and energy codes; supporting the design, implementation, and evaluation of other energy efficiency programs; and providing data to help estimate potential greenhouse gas reductions and cost savings from the housing stock. For example, all four of the cities discussed above receive substantial interest in energy efficiency programs from home energy rating recipients.

Other important findings from other evaluations and reports include the following:

- A survey from the National Association of Realtors (NAR 2023) found that 63% of realtors and brokers responding to their survey noted that promoting energy efficiency in listings is very or somewhat valuable. Almost half (48%) of agents and brokers found that consumers were very or somewhat interested in sustainability, while 14% of agents and brokers had clients ask for advice about energy efficiency upgrades very often or often.

Energy ratings for renters

While much of the attention on home energy ratings has been on homeowners and home sales, apartment owners and prospective tenants can also benefit from energy ratings. The DOE Home Energy Score (HES) was updated in 2024 to include manufactured housing and low-rise multifamily (DOE Better Buildings 2024). In Eugene, Oregon, the local utility—Eugene Water and Energy Board—provides free HESs to renters. As of 2023, it has provided over 700 scores (Earth Advantage 2024). The City of Gainesville, Florida, established a rental home permit inspection program in 2021 and operated the program until 2023 when a new state law was enacted to override local regulations for rental properties (Earth Advantage 2024). To our knowledge, none of these programs have been evaluated. However, Sussman et al. (2022) conducted an experiment in which they asked a nationally representative sample of 2,455 renters to use a mock-rental listing website to search for their next apartment. Some participants saw listings with energy efficiency information labels presented in one of six possible

formats, while participants in the control groups saw listings with no energy information. When energy labels were present, renters selected the most efficient listings 21% more often than when energy efficiency information was hidden. On average, renters were willing to increase their monthly rent by 1.8% for a one-unit increase in energy score (on a scale of 1–10), which would translate into more than $400 of additional annual revenue for landlords for an average-priced rental unit. More recently, Earth Advantage (2024) reviewed options for HES disclosure for rental units in Oregon and made recommendations. In addition to these programs for energy ratings, Colorado, Maine, New York State, Austin, Chicago, and Minneapolis have more-limited energy disclosure requirements for rental units, requiring disclosure of annual energy costs and/or energy efficiency features (ACEEE 2023).

A potential program for other jurisdictions

Based on the case studies provided above, the results of research on rating impact, previous ACEEE research (ACEEE 2022), and discussions with staff members working on program adoption and implementation, we make the following recommendations for factors that other jurisdictions should consider.

Goals

An energy-ratings program for home sales might have the following goals:

- Inform potential home purchasers of the relative energy use, energy costs, and greenhouse gas emissions of homes they are considering purchasing. As noted earlier, energy use is often the second highest cost of home ownership (behind mortgage payments) and households need to understand these costs as part of their purchase decisions. Home energy ratings can be considered a form of consumer protection. Also, such ratings can be a useful way to introduce a jurisdiction's "green values" to potential residents.
- Encourage home energy upgrades, particularly just before or shortly after home sales.
- Recognize efficient homes, helping them to sell for more and benefiting both current owners (higher selling price) and future owners (lower operating costs).
- Contribute to a growing body of programs and knowledge about home energy ratings, helping to document and popularize the concept, leading to substantial energy savings and greenhouse gas reductions beyond the immediate jurisdiction.

Mechanics and options

Building on the Portland and Minneapolis experiences and the various evaluation results, we suggest the following when developing proposals for home energy rating programs:

- Programs should require rating at the time of listing and require that the listing disclose the rating and estimated energy cost for a typical owner (e.g., using standardized assumptions and not the behavior of just current residents). In Berkeley, for example, the city initially required the rating around the time of closing, but it then modified the program to require rating at the time of listing, as in Portland and Minneapolis. The label should also summarize opportunities to improve the home and the rating. Portland and Minneapolis include all of these items and other additional items (see the sample labels in Appendix A).

- The enacting ordinance should outline the basic requirements, but the advice we have received from several people involved in enactment of home energy rating policies is to leave many of the details to city or state program staff to work out in consultation with housing groups, energy efficiency experts, realtors, and other interested parties. Local community groups should be consulted, particularly to receive input on best ways to help, and not harm, low- and moderate-income households and communities. Parts of the real estate industry are likely to oppose an ordinance, as discussed in the next section. But Portland found that after the ordinance passed, realtors were constructive when the discussion moved to how to implement the program, rather than whether to implement a program.
- Programs should generally be built around the DOE's HES, which is what Portland, Berkeley, Ann Arbor, and other California and Oregon cities use and what Olympia is planning to use. This system is easy for consumers to understand and has worked well for jurisdictions that have used it. Both Portland and Berkeley modified DOE's standard recommendations to fit local data and needs. We recommend that other jurisdictions do the same. For example, some jurisdictions might want to include electrification measures in the recommendations (as Minneapolis is now doing) and/or add a home's carbon emissions to the report. While Minneapolis has a great local tool customized for their housing stock, it also had a unique local group with extensive data and experience to develop the tool; most communities will not have such extensive local expertise.
- A home energy ratings program should be tied into other energy efficiency programs for existing homes, with the rating program promoting and making referrals to local programs including state, city, and utility programs, as well as any available national programs. All of our case study examples include such links. National programs to link to include the DOE Home Energy Rebate program run by states (up to $8,000 per home for weatherization and $14,000 per home for electrification) (BPA 2025); federal energy retrofit tax credits (up to $2,000 per home per year) (IRS undated); and Home Performance with Energy Star (an Environmental Protection Agency/DOE program operating in over 40 local areas) (Energy Star undated).[11] The Portland and Minneapolis sample labels in Appendix A show some of the ways these cities refer rating report recipients to available programs.
- Ratings should generally be required, but some exemptions can be granted where getting a rating would be difficult. As discussed above, participation in voluntary programs is generally low and there is a tendency for inefficient homes not to be rated. Regarding exemptions, as an example, Portland exempts foreclosure, trustee, and "underwater" sales, as well as sales that create undue hardship for the seller (with some specifics enumerated). A link to the Portland and Berkeley ordinances can be found in "Links to Program Materials" following the "References" section below.
- Jurisdictions should pay for ratings for low-income owners, as in each of our case study cities. One city with annual home sales of about 10,000 set aside $75,000 to pay these fees, and after three years, it had used $26,000 (ACEEE 2022).

[11] Energy Star has announced that it plans to retire this program, but an original end date was canceled and a new end date has not been set.

- Training of energy assessors to conduct energy ratings, and outreach to realtors and other people involved in real estate sales will be important. Both Portland and Minneapolis provide examples of how to effectively engage these stakeholders. For example, Portland trained and empowered HES assessors to conduct standard trainings for real estate agents.
- Programs should have a phase-in period so that details can be worked out and contractors and the real estate industry have time to prepare. For example, Portland passed its ordinance in December 2016, but it did not take effect until January 1, 2018. In Minneapolis, about nine months elapsed from passage to effective date. The degree of local experience with HESs will also affect how much time is needed, with more time needed for jurisdictions with limited experience. Time will be required to develop program details, conduct education and training, and work out any challenges. Several realtors we talked to as part of our research suggested a several-year lead time to work out details, set up systems, and gradually introduce ratings into the sales process without interfering with homes that are already on the market. We assume a phase-in of approximately two years in some of the projections discussed below.
- Initial compliance efforts emphasize outreach, education, and reminders, but not fines. The next stage is to issue threatening letters and, ultimately, fines can be implemented. This approach is illustrated in the Minneapolis and Portland case studies. As noted earlier, one suggestion from a program implementer was to base fines on the sale or listing price so that fines are lower for low-cost affordable housing and higher for luxury homes. Revenue from fines can be used to help pay for free ratings for low-income homeowners and to assist with home retrofits for these homeowners.

Additional recommendations and considerations are discussed by EMPRESS (2018) and ACEEE (2018).

Concerns and responses

When a jurisdiction moves forward, some concerns are likely to be raised, such as by the local realtor associations. Based on our many interviews with people involved in program development, enactment, and implementation, we identified several critiques that have come up in multiple jurisdictions. Major critiques that have been raised—and a summary of responses—are as follows:

Critique: An energy rating requirement can lengthen the sales process, adding another step.

Response: As noted above, experience in Chicago indicates that availability of energy information can shorten the sales process, as homes with this information on average sell quicker. Also, if the rating is required at time of listing, this is just another step before a home is put on the market and can be implemented in parallel with other steps. In Portland, for example, a rating can be obtained in just a few days. Also, a provision could be included in the rule to allow a home to be placed on the market if a rating cannot be obtained within one week, with the rating added to the listing as soon as it can be obtained.

Critique: An energy rating requirement adds an expense for home sellers; this could be a particular problem for low-income households.

Response: The expense (which appears to average about $150) is modest relative to a real estate transaction involving half a million dollars or more. As noted in the previous section, we recommend that jurisdictions pay for ratings for low-income owners. In Portland, some listing agents cover the expense as part of their services to the seller.

Critique: Will the price of inefficient homes decline?

Response: Available evidence (e.g., the Freddie Mac study discussed above) indicates that low ratings do not hurt the sale of inefficient homes but rather that high ratings can increase the price of efficient homes. For efficient homes, buyers recoup this higher cost through energy savings. For example, Pullers, West, and Meyers (2020) in their study on the Austin program found that the simple payback period on the higher cost of efficient homes was in line with other investments funded with long-term financing such as mortgages. Earth Advantage suggested to us that the market appears to already price in the risk of a low-scoring home. What has been missing is the ability for the market to differentiate higher performance and pay for it (D. Heslam, executive director, Earth Advantage, pers. comm. to S. Nadel, May 2025).

Critique: Ratings should be made voluntary and not mandated.

Response: As discussed above, participation rates in voluntary programs are very low (Sussman et al. 2020; L. McNutt, director, Dunsky Consulting, email to S. Nadel, January 2018). For this reason, the cities we profile all went with a mandatory program. This said, a broad voluntary program can make it easier for jurisdictions to adopt a mandatory program—as was the case with the adoption of mandatory programs in Bend, Hillsboro, and Milwaukie, Oregon, and in Piedmont, California (D. Heslam, executive director, Earth Advantage, pers. comm. to S. Nadel, May 2025).

Critique: A local rating infrastructure needs to be established.

Response: Many jurisdictions already have many energy auditors, such as those that participate in local utility programs. Likewise, home inspectors that often look over homes for prospective purchasers have a strong background for being ratings assessors. As part of program startup, program implementers should reach out to these firms and individuals to encourage them to receive the training and certifications to compile HESs. A similar situation existed in our case study cities, where energy audit and inspection contractors were quickly trained. Furthermore, as suggested in the prior section, time should be allocated between ordinance enactment and effective date for individuals to access training to deliver energy ratings.

Estimated energy savings and greenhouse gas reductions from a Connecticut program

To illustrate potential costs and benefits, ACEEE developed a first-cut estimate of the energy savings and emissions reductions from a home energy rating program covering the state of Connecticut over 1 year and 10 years. We chose Connecticut because HES is widely used in the state's utility energy efficiency programs. Our illustrative analysis, which is contained in Appendix C, includes only retrofits around the time of home purchase and not additional reductions that could happen over time from programs that could be developed to best leverage the collected data. Our general methodology is to look at annual home sales and average energy use and emissions per home, and then to estimate the proportion of homes that will make upgrades and how much will be saved on average from these upgrades. We primarily use Connecticut-specific data. We conclude that in Connecticut, over 10 years, a rating program could reduce site energy use by about 4.5 trillion Btu and reduce carbon dioxide emissions by about 0.27 million metric tons. To put these figures in perspective, Connecticut's residential sector emits about 7.3 million metric tons annually (Connecticut DEEP 2024). Additional programs that take advantage of the rating information, such as electrification programs, could increase the energy and emissions savings.

Rough estimate of costs for a Connecticut program

There would be various costs to the state to establish and operate a program. As an initial estimate, we suggest the rough estimate in table 3. This is based on implementation experience in several jurisdictions (ACEEE 2022) and discussions with program implementers in Portland and Minneapolis.[12]

Table 3. Rough estimate of the costs to the state of Connecticut to implement a Home Energy Rating program

	Year 1 (develop rules)	Year 2 (training and voluntary)	Year 3 and beyond (mandatory)
Staff	$ 112,500	$ 112,500	$ 112,500
Consultants	100,000		
Training		50,000	30,000
Database/website vendor		100,000	50,000
Education and outreach	50,000	100,000	50,000
Free ratings for low-income		3,885	38,850[13]
TOTAL	$ 262,500	$ 366,385	$ 281,350

Notes: This assumes one staff member at $75,000/year, plus 50% for benefits, travel, and supplies. Presently, Minneapolis uses about half a staff person and Portland uses even less than this. This will be possible for the rulemaking process if jurisdictions work from rules developed by Portland and Minneapolis. Consultants are to assist with program design and rule development, including software modifications. The database/website vendor is to set up a program through which inspectors can upload data and receive a report, and report data are put into a database both so homeowners can access this information and for use in future county programs. Assume 1% of sales will need free ratings starting in year 3 at $175 each (this includes a fee of ~$35 to pay for quality control checks on 5% of ratings). For the year 2 voluntary period we took 10% of year 3 estimate for free ratings. We do not include any fine revenue. This revenue, beginning in about year 4, can be used to cover the expense of free ratings for low-income homeowners. These figures are in current dollars and do not include inflation.

Conclusions

Home energy rating policies can be useful to inform prospective home purchasers about a home's energy efficiency and the steps they might take to improve it. Successful mandatory home energy rating

[12] The estimates in the table include extensive use of consultants and limited staff. Alternatively, the consultant, education, and outreach budget could be devoted to increased staff. One anonymous city providing data for ACEEE (2022) had 2.5 staff for developing the program and only a limited consultant budget.

[13] More households qualify for free ratings, but not all eligible households apply for them. Also, sometimes realtors pay for the ratings.

policies are operating in Portland, Oregon; Minneapolis, Minnesota; Berkeley, California; and in various smaller U.S. communities, as well as in communities in Europe and Australia. Proposals for similar programs are pending in other U.S. jurisdictions, and limited programs are operating in several other U.S. states and cities.

Evaluations of mandatory rating programs find that they increase the sales price of efficient homes and result in a substantial number of home energy retrofits. Homes with high ratings have lower mortgage default rates. Voluntary rating programs have very low participation rates and impact. In particular, under voluntary programs, inefficient homes are infrequently rated.

Home energy rating programs can be implemented with limited staff and at modest cost. Experienced consultants are available to assist.

Given this, states and cities should consider adopting legislation to require home energy ratings at the time a home is put on the market; doing so helps to inform consumers, as well as spur energy savings and greenhouse gas emissions reductions.

References

ACEEE (American Council for an Energy-Efficient Economy). 2023. "Energy Equity for Renters Policy Tracker." Washington, DC: ACEEE. www.aceee.org/energy-equity-renters-policy-map.

_____. 2022. "Time-of-Sale Disclosure Policies." Fact Sheet. Washington, DC: ACEEE. www.aceee.org/sites/default/files/pdfs/time-of-sale_factsheet_3-28-22.pdf.

_____. 2018. "Home Energy Efficiency Policies: Ratings, Assessments, Labels, and Disclosure." Washington, DC: ACEEE. www.aceee.org/sites/default/files/pdf/topic-home-energy-assessment.pdf.

ADENE. 2015. "Building Energy Performance Certificate Holders Survey." Cited in Hill et al. 2016.

Alvarez, Emily. 2024. "Home Energy Score California." www.homescoreca.org/sites/default/files/2024-08/HES%20CA%20Advice%20Letter%20Webinar_08.13.2024.pdf.

Argento, Robert., Xian Fang Bak, and Lariece Brown. 2020. *Energy Efficiency: Value Added to Properties & Loan Performance*. Washington, DC: Freddie Mac.

Austin Energy. 2024. "Reference Guide, Energy Conservation Audit and Disclosure Ordinance for Compliance During a Real Estate Transaction." Austin, TX: Austin Energy. www.austinenergy.com/-/media/project/websites/austinenergy/energy-efficiency/ecad/ecad_residential_guide_eng.pdf?rev=c9be0d5c5ed140de9912e20ff8dad428&sc_lang=en&hash=F97543E89B78A59D9D142DA5586BAB4C.

_____. 2011. "Austin's Early Experiences with Conservation Code's Disclosure Laws." Presentation at ACEEE National Symposium on Market Transformation. www.aceee.org/files/pdf/conferences/mt/2011/L2%20-%20Tim%20Kisner.pdf .

Berkeley. 2017. "Building Energy Saving Ordinance (BESO), Findings through Nov. 2016." (no longer on web).

_____. 2025. "Berkeley's Building Emissions Saving Ordinance (BESO) Amendments Effective Jan. 1, 2026." www.berkeleyca.gov/sites/default/files/documents/BESO%20Amendments%20Overview.pdf.

BPA (Building Performance Association). 2025. "State Home Energy Rebate Programs." www.building-performance.org/wp-content/uploads/2025/02/State-Home-Energy-Rebate-Programs-Factsheet.pdf.

Breshears, Elise. 2022. "Is Mandatory Disclosure Really Mandatory? An Evaluation of the Home Energy Score Program." www.elisebreshears.github.io/website/Breshears_JMP_2022_11_28.pdf.

Cassidy, Alecia. 2023. "How Does Mandatory Energy Efficiency Disclosure Affect Housing Prices." *Journal of the Association of Environmental and Resource Economists* 10, no. 3 (May). www.journals.uchicago.edu/doi/abs/10.1086/722262 .

CEC (California Energy Commission). 2025. "Home Energy Rating and Labeling Program." www.energy.ca.gov/programs-and-topics/programs/home-energy-rating-and-labeling-program.

Cluett, Rachel, and Jennifer Amann. 2013. *Residential Energy Use Disclosure.* Washington, DC: ACEEE. www.aceee.org/research-report/a131.

Connecticut DEEP (Department of Energy and Environmental Protection). 2024. *Connecticut Greenhouse Gas Emissions Inventory*. Hartford, CT: DEEP. www.portal.ct.gov/-/media/deep/climatechange/1990-2021-ghg-inventory/deep_ghg_report_90-21_pre-22.pdf.

DECC (Department of Energy and Climate Change). 2013. *Final Project Report, An Investigation of the Effect of EPC Ratings on House Prices*. www.gov.uk/government/publications/an-investigation-of-the-effect-of-epc-ratings-on-house-prices.

DOE (U.S. Department of Energy) Better Buildings. 2024. "Home Energy Score Manufactured Housing, Multifamily Updates." www.naseo.org/Data/Sites/1/documents/tk-news/innovative-uses-of-labeling-gilly.pdf.

DOE. 2022. "Home Energy Score." www.energy.gov/eere/buildings/articles/home-energy-score.

Earth Advantage. 2024. "Mending the Split: Pathways for Energy Score Disclosure for Rental Housing in Oregon. Portland, OR: Earth Advantage." www.earthadvantage.org/news/new-report-outlines-how-local-governments-can-support-h.html.

EMPRESS Team. 2018. *EMPRESS Project Final Report.* Arlington, VA: NASEO. www.naseo.org/Data/Sites/1/documents/committees/buildings/resources/empress-project-final-report_v1[1].pdf.

Energy Consult. 2006. "A Study of the Impact of Mandatory Energy Performance Disclosure Requirements for Class 1 Buildings in the ACT." Prepared for the ACT Department of Environment and Heritage. Cited in Hill et al. 2016.

Energy Star. Undated. "Home Performance with ENERGY STAR Programs." www.energystar.gov/saveathome/improvements/professionals/become-program-sponsor/full-list.

ETO (Energy Trust of Oregon). 2024. "City of Portland Home Energy Score Energy Trust Residential Measures at HES Site." Memo to City of Portland. Portland, OR: ETO.

Glickman et al. 2016. "Scaling Up Energy Ratings, Labels and Scores: Latest Trends to Promote Widespread Adoption." https://www.aceee.org/files/proceedings/2016/data/papers/7_467.pdf.

Grace, Molly. 2023. "Must-Know Costs of Owning a Home, Explained." *Rocket Home*. Dec. 2. www.rockethomes.com/blog/home-buying/costs-of-owning-a-home.

Hill et al. 2016. "Predicting Home Energy Rating and Disclosure Impacts for North American Jurisdictions." www.aceee.org/files/proceedings/2016/data/papers/7_218.pdf.

IRS (Internal Revenue Service). Undated. "Energy Efficient Home Improvement Credit." www.irs.gov/credits-deductions/energy-efficient-home-improvement-credit.

JCHS (Joint Center on for Housing Studies). 2025. *Improving America's Housing 2025.* Cambridge, MA: Harvard University. www.jchs.harvard.edu/improving-americas-housing-2025.

JLC (Journal of Light Construction). 2024. "2024 Cost vs. Value Report." www.jlconline.com/cost-vs-value/2024/.

Jossi, Frank. 2021. "Minneapolis Program Puts Energy Audits into Hands of Potential Homebuyers." *Canary Media*. April 5. www.canarymedia.com/articles/enn/minneapolis-program-puts-energy-audits-into-hands-of-potential-homebuyers.

Lorio, Lorilyn. 2025. "Olympia Reviews Proposed Ordinance Requiring Home Energy Score for Home Sales." *JOLT News*. March 17. www.thejoltnews.com/stories/olympia-reviews-proposed-ordinance-requiring-home-energy-score-for-home-sales,19181.

Meyers, Erica, Steven Puller, and Jeremy West. 2022. "Mandatory Energy Efficiency Disclosure in Housing Markets." *American Economic Journal: Economic Policy* 14 (4): 453–87. www.aeaweb.org/articles?id=10.1257/pol.20200539.

_____. 2019. "Mandatory Energy Efficiency Disclosure in Housing Markets." National Bureau of Economic Research Working Paper 26436. www.nber.org/system/files/working_papers/w26436/w26436.pdf.

Minneapolis. 2025. "Truth in Sale of Housing." www.minneapolismn.gov/resident-services/property-housing/buying-selling/tish/.

Montpelier. 2025. "Home Energy Information Ordinance." City of Montpelier, VT. www.montpelier-vt.org/1299/Home-Energy-Information-Ordinance.

Mudgal et al. 2013. *Energy Performance Certificates in Buildings and Their Impact on Transaction Prices and Rents in Selected EU Countries, Final Report.* European Commission (DG Energy). www.efenergia.com/wp-content/uploads/20130619-energy_performance_certificates_in_buildings.pdf.

Murphy, Lorraine. 2014. "The Influence of the Energy Performance Certificate: The Dutch case." *Energy Policy*. 61: 664-672. www.sciencedirect.com/science/article/abs/pii/S0301421513011841?via%3Dihub.

Nadel, Steven, and Adam Hinge. 2023. *Mandatory Building Performance Standards: A Key Policy for Achieving Climate Goals*. Washington, DC: ACEEE. www.aceee.org/white-paper/2020/06/mandatory-building-performance-standards-key-policy-achieving-climate-goals.

NAR (National Association of Realtors). 2023. "Majority of Agents, Brokers Find Value in Promoting Energy Efficiency in Listings, According to NAR Report." www.rismedia.com/2023/05/04/consumers-want-energy-efficient-listings-nar-finds/.

Nelson, Carl, and Isaac Smith. 2018. *Transforming the Market for Energy Efficiency in Minneapolis; Recommendations for Residential Energy Efficiency Rating and Disclosure*. Minneapolis, MN: CEE (Center for Energy and the Environment). www.mncee.org/sites/default/files/report-files/Mpls-Residential-EE-Disclosure_White-Paper_20180912.pdf.

Otalora-Fadner, Arbor. 2022. "Energy Disclosure Impact Report: January 2020 through June 2022." Minneapolis, MN: CEE. www.mncee.org/energy-disclosure-impact-report-january-2020-through-june-2022.

_____. 2025. "Energy Disclosure Impact Report: January 2020 through December 2023." Minneapolis, MN: CEE. www.mncee.org/energy-disclosure-impact-report-january-2020-december-2023 .

Philbrick et al. 2016. "Moving the Market: Energy Cost Disclosure in Residential Real Estate Listings." www.elevateenergy.org/wp/wp-content/uploads/Moving-the-Market-Energy-Cost-Disclosure-in-Residential-Real-Estate-Listings.pdf.

Pigman et al. 2022. "How Does Home Energy Score Affect Home Value and Mortgage Performance?" In *Proceedings of the 2022 ACEEE Summer Study on Energy Efficiency in Buildings*. www.eta-publications.lbl.gov/sites/default/files/pigman_aceee_summer_study_2022_preprint.pdf.

Portland. 2020. "Report to Portland City Council on Residential Energy Performance Rating and Disclosure (Ordinance No. 188143)." www.portland.gov/pdxhes/documents/report-portland-city-council-residential-energy-performance-rating-and-disclosure/download.

Puller, Steve, Jeremy West, and Erica Meyers. 2020. "Mandatory Energy Efficiency Disclosure in Housing Markets." CEPR. Nov. 15. www.cepr.org/voxeu/columns/mandatory-energy-efficiency-disclosure-housing-markets.

Roy et al. 2018. "Learning the Score: Lessons from Developing and Deploying the Nation's First Mandatory Home Energy Score Policies." In *Proceedings 2018 ACEEE Summer Study on Energy Efficiency in Buildings*. Washington, DC: ACEEE. www.aceee.org/files/proceedings/2018/#/paper/event-data/p293.

Santos et al. 2016. *The Impact of Energy Performance Certificates on Property Values and Nearly Zero-Energy Buildings—An Analysis for Market Professionals, Owners and Tenants, Deliverable D3.1 of the IEE-Project ZEBRA2020*. www.hdl.handle.net/20.500.12708/38971.

Sussman, Reuven. 2017. *How to Talk About Home Energy Upgrades*. Washington, DC: ACEEE. www.aceee.org/blog/2017/10/why-do-people-invest-home-energy.

Sussman et al. 2022. *Energy Labels Affect Behavior on Rental Listing Websites: A Controlled Experiment*. Washington, DC: ACEEE. www.aceee.org/research-report/b2204.

Sussman et al. 2020. *Energy Efficiency in Real Estate Listings: A Controlled Experiment*. Washington, DC: ACEEE. www.aceee.org/research-report/b2002.

York et al. 2015. *Expanding the Energy Efficiency Pie: Serving More Customers, Saving More Energy through High Program Participation*. Washington, DC: ACEEE. www.aceee.org/research-report/u1501.

Links to program materials

Portland ordinance and related information: https://www.portlandoregon.gov/bps/71421.

Minneapolis program information:

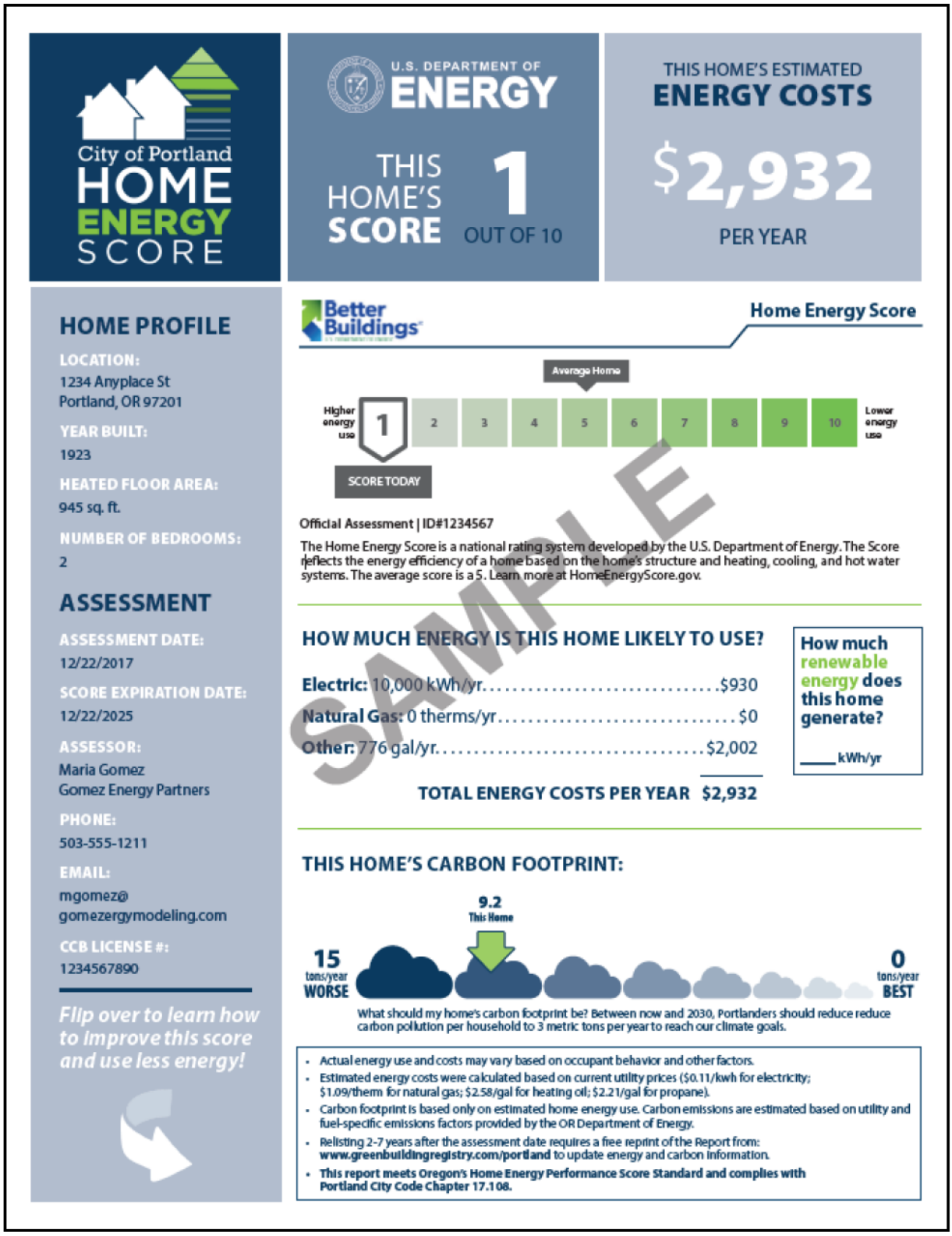
Truth in selling: https://www.minneapolismn.gov/resident-services/property-housing/buying-selling/tish/.

Energy disclosure: https://www.mncee.org/energy-disclosure.

Berkeley ordinance and related information: https://www.cityofberkeley.info/BESO/.

Austin program information: https://austinenergy.com/energy-efficiency/ecad-ordinance/energy-conservation-audit-and-disclosure-ordinance.

Appendix A. Sample labels



Score today:	Score with improvements:*	Estimated energy savings with improvements:	Estimated carbon reduction with improvements:
1	9	$1,672 PER YEAR	57% PER YEAR

TACKLE ENERGY WASTE TODAY!

Enjoy the rewards of a comfortable, energy efficient home that saves you money.

- [x] Get your home energy assessment. Done!
- [ ] Choose energy improvements from the list of recommendations below.

  Need help deciding what to do first? Non-profit Enhabit offers free 15-minute phone consults with expert home advisors. Call 855-870-0049.
- [ ] Select a contractor (or two, for comparison) and obtain bids.

  Checkout **www.energytrust.org/findacontractor** or call toll free **1-866-368-7878**.
- [ ] Explore financing options at **www.enhabit.org** or **www.energytrust.org**.

* PRACTICAL ENERGY IMPROVEMENTS | COMPLETE NOW OR LATER

To achieve the "score with improvements," all recommended improvements listed below must be completed. Improvements all have a simple payback of ten years or less and may be eligible for mortgage financing. For a more detailed explanation of costs and payback, please get a bid from a contractor.

FEATURE	TODAY'S CONDITION	RECOMMENDED IMPROVEMENTS
Attic insulation	Ceiling insulated to R-0	Insulate to R-38 or R-49 if code requires it
Attic insulation	Ceiling insulated to R-19	Insulate to R-38 or R-49 if code requires it
Duct insulation	Un-insulated	Insulate to R-8
Duct sealing	Un-sealed	Reduce leakage to a maximum of 10% of total airflow
Envelope/Air Sealing	Not professionally air sealed	Professionally air seal
Heating Equipment	Oil furnace 60% AFUE	Upgrade to ENERGY STAR
Heating Equipment	Natural Gas/Propane Furnace	Upgrade to ENERGY STAR
Wall insulation	Insulated to R-0	Fully insulate wall cavities
Water Heater	Standard electric tank	Upgrade to ENERGY STAR, minimum 2.76 EF (Energy Factor)
Windows	Multiple types	Upgrade to ENERGY STAR
Air Conditioner	None	
Basement wall insulation	None	
Floor insulation	Insulated to R-0	
Foundation wall insulation	None	
Skylights	None	
Cathedral ceiling	None	
Solar PV	None	Visit www.energytrust.org/solar to learn more

YOU CAN DO IT YOURSELF!

Looking for low-cost ways to cut energy waste, boost your comfort and lower your energy bills? Visit the resources below to learn about easy changes you can make today:

www.energytrust.org/tips and **www.communityenergyproject.org/services**

Minneapolis
City of Lakes

Energy Disclosure Report

Home Profile

Location:
1234 Street, Unit 1
Minneapolis, MN 55555

Year built: 1950

House sq. ft.: 1,400

Number of stories: 1

Visit Date: 8/20/20

How it Works

The energy score for your home is similar to MPG for a car, but it evaluates the energy performance of the home. The higher the home scores, the lower your energy bills will be.

Improve your score by completing the energy improvements below. Homes with the highest scores typically sell for 2-6% more.**

When you are ready to begin, contact an Energy Advisor at 651-328-6225. They can answer questions and connect you to helpful resources.

Financing and rebates are available from the City of Minneapolis and CenterPoint Energy to help you complete these energy improvements.

Energy Score

Home Energy Summary

Your home is less energy efficient than most homes in Minneapolis. You have multiple opportunities to increase your home's comfort and decrease energy bills by making cost-effective energy improvements. To learn more visit **mncee.org/TISH** or contact an Energy Advisor.

	Energy Improvements *(by priority)*	Improvement Points	Typical Cost	Utility Rebate	Yearly Bill Savings
Wall Insulation	Insulate your exterior walls	20	$1,950–$2,200	Up to $500	$200–$400
Attic Insulation	Air seal and insulate your attic	11	$1,650–$1,950	Up to $500	$150–$300
Heating System	Upgrade your furnace when it's 20 years old	13	$3,500–$6,000	Up to $500	$150–$300
Storm Windows	Add a storm window to your single-pane windows	1	$50–$60 per window	———	$6–$8 per window

Contact an Energy Advisor: **651-328-6225** | **energydisclosure@mncee.org** | **mncee.org/TISH**

cee Center for Energy and Environment

Next Step:

Contact an Energy Advisor


Mike


Kat

651-328-6225 or
energydisclosure@mncee.org
mncee.org/TISH

An Energy Advisor can help:


Answer your questions


Connect you to financing and utility rebates


Refer you to trusted contractors

The energy advisor service is provided by CEE with funding from CenterPoint Energy.

Prioritized Energy Improvements

Current Wall R-Value: R-3
Recommended R-Value: R-11

Wall Insulation

20 improvement points

Insulate your walls. Walls with little insulation are cold and drafty. Dense packing your walls with insulation will reduce home drafts and improve home comfort. This will also reduce energy waste and save money. Contact an Energy Advisor to learn more and get help with next steps.

Typical Cost:*
$1,950–$2,200
Yearly Bill Savings:*
$200–$400
Rebate Available:
Up to $500

Current Attic R-Value: R-20
Recommended R-Value: R-50

Attic Insulation

11 improvement points

Air seal and insulate your attic to improve the comfort of your home. Air leaks allow air from inside your house to enter the attic, potentially causing comfort issues, ice dams and moisture issues. Sealing these leaks and adding insulation will improve your home's durability and save energy. Contact an Energy Advisor to learn more and get help with next steps.

Typical Cost:*
$1,650–$1,950
Yearly Bill Savings:*
$150–$300
Rebate Available:
Up to $500

Type:
Forced Air Furnace
Venting:
Induced Draft
Age:
< 20 years old

Heating System

13 improvement points

When it's time to replace your furnace, choose a model that has an efficiency (AFUE) of at least 96% and an electronically commutated motor (ECM). Furnaces typically have a 20 year life. When your furnace is approaching this age, replace it before it stops working. When you replace it, contact an Energy Advisor for guidance. They'll ensure you upgrade to a modernized heating system that properly removes combustion gases and maximizes your energy savings.

Typical Cost:*
$3,500–$6,000
Yearly Bill Savings:*
$150–$300
Rebate Available:
Up to $500

# of single pane windows: 1

Storm Windows

1 improvement points

Install a storm window on the exterior of single-pane windows to cost-effectively reduce your energy usage. Although generally not justified by the energy savings alone, you may also consider replacing single-pane windows with double-paned, high efficiency, ENERGY STAR rated windows.

Typical Cost:*
$50–$60 per window
Yearly Bill Savings:*
$6–$8 per window
Rebate Available:
n/a

* The typical cost for each project is calculated by taking the average of thousands of homes of a similar age and construction. The estimated savings is the average reported savings for homes that received a utility rebate. Actual cost and savings may vary. Please contact an Energy Advisor if you have questions.

** Multiple studies referenced by the U.S. Department of Energy show that homes that are labeled as energy efficient sell for 2-6% more.

Appendix B. Sample home energy rating legislation

[This is based on the Portland ordinance.]

Residential energy performance rating and disclosure

Purpose
The purpose of this ordinance is to provide information to homebuyers about residential building energy performance. This information is designed to enable more knowledgeable decisions about the full costs of operating homes and to motivate investments in home improvements that lower utility bills, reduce carbon emissions, and increase comfort, safety, and health for homeowners. This document shall be known as the Home Energy Rating Program.

Definitions
For purposes of this document, the following terms shall be understood to have the meanings specified as follows. Terms, words, phrases, and their derivatives used but not specifically defined in this section shall have their commonly understood meanings.

A. **Accessory dwelling unit:** a second dwelling unit created on a lot with a house, attached house, or manufactured home. The second unit is created auxiliary to, and is always smaller than, the house, attached house, or manufactured home. The unit includes its own independent living facilities including provision for sleeping, cooking, and sanitation, and is designed for residential occupancy by one or more people, independent of the primary dwelling unit.

B. **Asset rating:** a numerical value calculated by a home energy performance score system. The asset rating is an easy-to-produce rating designed to help homeowners and homebuyers gain useful information about a house's energy performance and recommendations on cost-effective energy efficiency improvements. For existing houses, the asset rating is produced based on an in-house assessment that can be completed in less than an hour. For new houses, the asset rating may be produced based on design documents for the house.

C. **Covered building:** any residential structure containing a single dwelling unit or house, regardless of size, on its own lot. “Covered building” also includes an attached single dwelling unit, regardless of whether it is located on its own lot, where each unit extends from foundation to roof, such as a row house, attached house, common-wall house, duplex, or townhouse. “Covered building” does not include detached accessory dwelling units or manufactured dwellings. “Covered building” also does not include single dwelling units used solely for commercial purposes nor units in multifamily buildings that do not extend from foundation to roof.

D. **Director:** the director of the [lead department] or his or her authorized representative, designee, or agent.
E. **Energy:** electricity, natural gas, propane, steam, heating oil, wood, or other product sold for use in a building, or renewable on-site electricity generation, for purposes of providing

heating, cooling, lighting, water heating, or for powering or fueling other end-uses in the building and related facilities.

F. **Homebuilder:** an individual or business entity building new construction single dwelling unit housing within [jurisdiction] to be listed for sale.

G. **Home energy assessor:** a person who meets the training and on-going quality certification requirements required by the U.S. Department of Energy (DOE) for Home Energy Score (HES) assessors.[14]

H. **Home energy performance report:** the report prepared by a home energy assessor in compliance with this document. This report must include the following information:

1. The home energy performance score and an explanation of the score

2. An estimate of the total annual energy used in the home in retail units of energy, by fuel type

3. An estimate of the total annual energy generated by on-site solar electric, wind electric, hydroelectric, and solar water heating systems in retail units of energy, by type of fuel displaced by the generation

4. An estimate of the total monthly or annual cost of energy purchased for use in the covered building in dollars, by fuel type, based on the current average annual retail residential energy price of the utility serving the covered building at the time of the report and the average annual energy prices of non-regulated fuels, by fuel type, as provided by the [relevant state agency]

5. The current average annual utility retail residential energy price in dollars, by fuel type, and the average annual energy prices of non-regulated fuels, by fuel type, provided by the [relevant state agency] and used to determine the costs described in item 4 immediately above

6. At least one comparison home energy performance score that provides context for the range of possible scores. Examples of comparison homes include, but are not limited to, a similar home with the [jurisdiction's] average energy consumption, the same home built to state energy code, and the same home with certain energy efficiency upgrades

7. The name of the entity that assigned the home energy performance score and that entity's license number (if a license is required by law)

8. The date that the building energy assessment was performed

In addition to these items, the director may add additional items to the home energy performance report such as the greenhouse gas emissions associated with a home or a home-specific package of measures to improve the score.

[14] These requirements can be found at https://betterbuildingssolutioncenter.energy.gov/home-energy-score/become-assessor.

I. **Home energy performance score:** an asset rating based on physical inspection of the home or design documents used for the home's construction.

J. **Home energy performance score system:** a system that incorporates building energy assessment software to generate a home energy performance score and home energy performance report. An example of a home energy performance score system is the DOE's HES. The director may authorize use of additional home energy performance score systems.

K. **House:** a detached dwelling unit located on its own lot.

L. **Listed publicly for sale:** listing the covered building for sale by printed advertisement, internet posting, or publicly displayed sign.

M. **Manufactured dwelling:** a dwelling unit constructed off site which can be moved on the public roadways. Manufactured dwellings include residential trailers, mobile homes, and manufactured homes.

N. **Real estate listings:** any public listing of homes for sale in [jurisdiction]. "Real estate listings" include listing a home for sale by a property owner or by a licensed real estate agent. These listings also include any printed advertisement, internet posting, or publicly displayed sign, including but not limited to the Regional Multiple Listing Service, Redfin, Zillow, Trulia, or other third-party listing services. "Real estate listings" are required to include the home energy performance score and the home energy performance report.

O. **Sale:** the conveyance of title to real property as a result of the execution of a real property sales contract. "Sale" does not include transfer of title pursuant to inheritance, involuntary transfer of title resulting from default on an obligation secured by real property, change of title pursuant to marriage or divorce, condemnation, or any other involuntary change of title affected by operation of law.

P. **Seller:**

1. An individual or entity possessing title to a property that includes a covered building

2. The association of unit owners responsible for overall management in the case of a condominium or other representative body of the jointly owned building with authority to make decisions about building assessments and alterations.

Authority of director to adopt rules

The director is authorized to administer and enforce provisions of this document.

A. The director is authorized to adopt administrative rules, procedures, and forms to implement the provisions of this document.

1. Any rule adopted pursuant to this section shall require a public review process. Not less than 10 days or more than 30 days before this public review process, notice shall be given by publication on the [jurisdiction]. Such notice shall include the place, time, and purpose of the public review process and the location at which copies of the full set of the proposed rules may be obtained. In addition to the public review process noted above, the director shall directly reach out to utilities, community-

based organizations and associations of realtors, energy auditors, contractors, and municipalities based in [the jurisdiction].

2. During the public review, the director shall hear testimony or receive written comment concerning the proposed rules. The director shall review the recommendations, taking into consideration the comments received during the public review process, and shall either adopt, modify, or reject the proposed rules. Unless otherwise stated, all rules shall be effective upon adoption by the director and shall be filed in the Office of the Director and with [the jurisdiction's] policy documents repository.

3. Notwithstanding the provisions above, an interim rule may be adopted by the director without prior notice upon a finding that failure to act promptly will result in serious prejudice to the public interest or the interest of the affected parties, including the specific reasons for such prejudice. Any interim rule adopted by the director shall be effective for a period no longer than one year after the date that the interim rule is adopted. Within five business days of the adoption of an interim rule, the director shall provide notice of the rule, giving the language of the rule change, describing the purpose of the rule, and inviting the submission of comments. At a minimum, notice will be provided to the following:

a. Utilities and associations of realtors, energy auditors, contractors, and municipalities based in [the jurisdiction].

b. Persons on a list maintained by the director of parties interested in the home energy rating program.

B. The director may temporarily suspend or modify the requirements of this document based on a determination that such requirements are temporarily infeasible due to economic or technical circumstances. The director's determination to temporarily suspend or modify shall be filed as a report with [the jurisdiction's legislative body]. The director's determination shall be effective after the council has accepted the report.

Energy performance rating and disclosure for covered buildings

A. Prior to publicly listing any covered building for sale, the seller of a covered building or the seller's designated representative shall:

1. Obtain a home energy performance report of such building from a home energy assessor (as defined earlier)

2. Provide a copy of the home energy performance report to

a. all licensed real estate agents working on the seller's behalf,

b. prospective buyers who visit the home while it is listed publicly for sale, and

c. the director, for quality assurance and evaluation of policy compliance.

3. Include the home energy performance score in all real estate listings, including the home energy performance report, if attachments are accepted by the listing service.

B. Prior to or at the closing, the seller of a covered building or the seller's designated representative shall provide a copy of the home energy performance report to the purchaser.

Exemptions and waivers

A. The director may exempt a seller from the requirements of this document if the seller submits documentation that the covered building will be sold through any of the following:

1. A foreclosure sale

2. A trustee's sale

3. A deed-in-lieu of foreclosure sale

4. Any pre-foreclosure sale in which the seller has reached an agreement with the mortgage holder to sell the property for an amount less than the amount owed on the mortgage

B. The director may exempt a seller from the requirements of this document after confirming that compliance would cause undue hardship for the seller under the following circumstances:

1. The covered building qualifies for sale at public auction or acquisition by a public agency due to arrears for property taxes

2. A court appointed receiver is in control of the covered building due to financial distress

3. The senior mortgage on the covered building is subject to a notice of default

4. The responsible party is otherwise unable to meet the obligations of this document as determined by the director

C. The director may pay for a home energy assessment on a home if the homeowner has a low income. If the director is unable to pay for such assessment, the director shall waive the requirement for a home energy assessment on such home. For the purposes of this section, low income means one or more of the following:

1. The low-income-qualified seller demonstrates household income at or below 60% of median household income for the [jurisdiction].

2. The low-income-qualified seller has been approved for participation in [the state's] Low-Income Home Energy Assistance Program.

3. The low-income-qualified seller has been approved for participation in free and reduced-price meals through [the state's] Department of Education.

D. The director may provide a waiver from the requirements of this document for homebuilders or sellers using scoring products that are different from the DOE's HES. The

waiver will allow homebuilders or sellers currently using Home Energy Rating System (HERS) or other scores to temporarily continue the use of these asset rating tools.

Enforcement and penalties

A. It shall be a violation of this document for any person to fail to comply with the requirements of this document or to misrepresent any material fact in a document required to be prepared or disclosed by this document.

B. Any building owner or person who fails, omits, neglects, or refuses to comply with the provisions of this document shall be subject to the following:

1. Upon the first violation, the director may issue a written warning notice to the entity or person, describing the violation and steps required to comply.

2. If the violation is not remedied within 90 days after issue of written warning notice, the director may assess a civil penalty of up to $750. For every subsequent 180-day period during which the violation continues, the director may assess additional civil penalties of up to $750. The director may base the civil penalty on the listing or selling price of the home, such that the average size home sold in [jurisdiction] has a civil penalty of approximately $750. Any penalties collected shall be used to provide free ratings to homes owned by low-income households and for other services to help these households reduce their energy costs.

Right of appeal and payment of assessments

After being issued a written warning notice of a first violation, any person receiving a subsequent notice of violation shall, within 10 days of issuance of the notice, either pay to [the jurisdiction] the stated amount of the assessment or request an appeal hearing by the code hearings officer in accordance with procedures set forth in [chapter xxx] of [the jurisdiction's] code. The filing of an appeal request shall stay the effective date of the assessment until the appeal is determined by the code hearings officer. If, pursuant to said appeal hearing, payment of the assessment is ordered, such payment must be received by the director or postmarked within 15 calendar days after the order becomes final.

Appendix C. Energy savings and carbon dioxide emissions reductions from a time-of-sale home energy rating program in Connecticut

Row	Variable	Value	Source
1	Number of housing units, 2022	1,531,332	www.housingprofiles.pschousing.org/compare/
2	Percent that are single-family	65%	Same a above
3	Number of single-family	990,772	Row 1 * Row 2
4	Primary heating fuel (%), 2023		www.eia.gov/state/data.php?sid=CT#ConsumptionExpenditures
	Natural gas	36.8%	(for all homes, not just single-family)
	Fuel oil	34.4%	
	Propane	6.4%	
	Electricity	100%	All homes use electricity; 19% use electricity for heating
5	Energy use per home for homes using this fuel, 2020		www.eia.gov/consumption/residential/data/2020/index.php?view=state
	Natural gas (CCF)	557	(these data are for all homes, not just single-family)
	Fuel oil (gallons)	629	
	Propane (gallons)	290	
	Electricity (kWh)	7,794	
	Site Btu (millions)	92	
6	Residential GHG emissions (MMT CO2e) (prelim. 2022)	7.3	https://portal.ct.gov/deep/climate-change/ct-greenhouse-gas-inventory-reports
	Residential share of electric sector emissions	1.2	Based on residential accounting for 47% of electricity use (www.eia.gov/state/seds/data.php?incfile=/state/seds/sep_fuel/html/fuel_use_es.html&sid=CT)
7	Average CO2 emissions per home (MT)	5.53	Row 6 * 1m (to convert to MMT) / Row 1
8	Single-family homes sold in 2024	27,750	www.redfin.com/state/Connecticut/housing-market
9	Percent of sales that receive a rating	80%	Figure suggested by Energy Advantage who runs these programs in several cities
10	Average savings from a retrofit package	20%	Savings at least 20% (www.energystar.gov/ia/home_improvement/HPwES_Utility_Intro_FactSheet.pdf); we use 20%
11	Percent of rating recipients who retrofit	20%	Based on data in Table 1 in paper
12	Total energy savings per home sold		
	Natural gas (CCF)	6.56	Row 4 * Row 5 * Row 9 * Row 10 * Row 11
	Fuel oil (gallons)	6.92	Same as above
	Propane (gallons)	0.59	Same as above
	Electricity (kWh)	249.41	Same as above
	Site Btu (millions)	2.93	Same as above (for 100% of homes)
	CO2 (MT)	0.18	Row 7 * Row 9 * Row 10 * Row 11
13	Annual savings from one year of a program		
	Natural gas (CCF)	182,019	Row 8 * Row 12
	Fuel oil (gallons)	192,142	
	Propane (gallons)	16,481	
	Electricity (MWh)	6,921	Note change to MWh
	Site Btu (billions)	81	Note change to billion BTU
	CO2 (MT)	4,915	
14	Annual savings in year ten of a program		Row 13 * 10
	Natural gas (CCF)	1,820,187	
	Fuel oil (gallons)	1,921,419	
	Propane (gallons)	164,813	
	Electricity (MWh)	69,211	
	Site Btu (billions)	814	
	CO2 (MT)	49,145	
15	Cumulative savings over ten years	-	Average of Rows 13 & 14 times 10 years
	Natural gas (MCF)	1,001,103	Note change to MCF
	Fuel oil (1000 gallons)	10,568	Note change to 1000 gallons
	Propane (1000 gallons)	906	Note change to 1000 gallons
	Electricity (MWh)	380,659	
	Site Btu (billions)	4,479	
	CO2 (MT)	270,300	

Other jurisdictions can conduct a similar analysis, pulling from data for their jurisdiction.[15]

[15] If you would like to obtain a copy of our spreadsheet, please contact snadel@aceee.org.