



EXECUTIVE SUMMARY

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# Home Energy Efficiency and Mortgage Risks

Research funded by the Institute for Market Transformation

# Executive Summary

In recent years, home energy efficiency has progressed from the margins to the mainstream. Builders large and small are now constructing homes to higher energy efficiency levels. Increasingly, remodeling projects include energy efficiency upgrades. Most importantly, consumer awareness and acceptance are high. Consumers understand that energy efficiency pays for itself over the lifetime of the building through lower heating and cooling costs.

Despite these trends, the market has not reached its full potential. Financing obstacles prevent many moderate- and middle-income homebuyers and owners from enjoying the benefits of energy efficiency. An important way to encourage greater adoption of residential energy efficiency measures is for mortgage pricing or underwriting flexibility to reflect the savings that come as a result of energy efficiency. Lenders and investors have been reluctant to do so, in part because they lack reliable loan performance data on which to base underwriting decisions.

Many have theorized that energy-efficient homes should have lower default risks than standard homes because the former are associated with lower energy costs, which leaves more money to make the mortgage payment. However, few empirical studies have been conducted due to limited data availability.

This study examines actual loan performance data obtained from CoreLogic, the lending industry's leading source of such data. To assess whether residential energy efficiency is associated with lower default and prepayment risks, a national sample of about 71,000 ENERGY STAR- and non-ENERGY STAR-rated single-family home mortgages was carefully constructed, accounting for loan, household, and neighborhood characteristics.

The study finds that default risks are on average 32 percent lower in energy-efficient homes, controlling for other loan determinants. This finding is robust, significant, and consistent across several model specifications. A borrower in an ENERGY STAR residence is also

one-quarter less likely to prepay the mortgage. Within ENERGY STAR-rated homes, default risk is lower for more energy-efficient homes. The lower risks associated with energy efficiency should be taken into consideration when underwriting mortgages.

## Financing Energy Efficiency

Making homes energy efficient often requires higher upfront costs, but financing mechanisms can help offset them. Investments in residential efficiency often produce rates of return well above interest rates or other investment opportunities. Still, market failures, such as transaction costs and information asymmetries, prevent rapid and widespread adoption of energy efficiency. To succeed, public- and private-sector efficiency programs must overcome these barriers.

The U.S. housing stock is valued at about \$14.5 trillion, according to the Federal Reserve System. Even 2% devoted to energy efficiency improvements would require capital outlays of nearly \$300 billion. That amount exceeds any funding we could realistically expect from the government or utility sector. A variety of funding mechanisms exist today, such as, state and local energy efficiency loan funds, on-bill repayment, and PACE bonds. But their scale is vastly lower than what is required.

By far, the most widely used mechanism is direct borrowing. Most energy improvements for existing homes can be financed through consumer loans, a home equity loan secured by property, or a traditional or specialized mortgage. Such financing usually requires that consumers have substantial equity in their existing homes, the financial reserves to pay any added costs out-of-pocket, or larger down payments for a home purchase. For many first-time homebuyers and moderate-income borrowers who do not have these financial resources, energy-efficient mortgages (EEM) offer a solution. EEMs offer lenders flexibility in the debt-to-income and other underwriting considerations so that borrowers can qualify for larger loans or lower interest rates.

*The study indicates that default risks are on average 32 percent lower in energy-efficient homes, controlling for other loan determinants.*

Conceptually, EEMs and other mortgage-based products present a number of advantages as energy efficiency financing tools, since they allow consumers to finance efficiency features at mortgage rates, as opposed to high commercial credit rates. However, these products have received little market uptake to date, largely because of the transactional complexity, poorly developed lender guidance, limited benefits for lenders, and lack of consumer information. Few lenders currently offer them except for Federal Housing Administration (FHA) and Veterans Administration mortgages, even in states with the largest numbers of new ENERGY STAR homes.

The limited availability of EEMs may be due in large part to the market's tighter mortgage qualification rules, which do not recognize energy efficiency, as well as a lack of information about their default risks. If, indeed, mortgages on energy-efficient homes have lower risks than those on less efficient homes, then good credit policy would merit more flexible underwriting standards or even consideration in loan-level price adjustments. In addition, with more accurate information on risks, lenders may be able to develop and tailor mortgage products that better meet the needs of both consumers and investors.

## Policy Implications

Because the findings are consistent across different model specifications and types of subsamples, we can derive a number of implications for policy and lending practices.

First, lenders may want to require information about energy costs and encourage an energy audit or energy rating during the process of mortgage underwriting. In the same manner that appraisals calculate the value of the home, an energy-rating determination could inform other important characteristics of the loan, including the debt-to-income ratio. Utilizing energy audits as part of the mortgage underwriting process would help homeowners make informed decisions about energy efficiency investments and likely promote long-term efficiency of the housing stock.

Second, lenders and secondary market investors should take into account the energy efficiency of the home used as collateral for the loan in an underwriting decision. For instance, they may allow for a higher debt-to-income ratio and a higher appraisal value to offset the modest increase in cost-of-energy improvements. This and similar approaches would allow borrowers to obtain the underwriting flexibility needed to cover the modest additional cost of energy efficiency features and increase affordability for many moderate- and middle-income borrowers.

In summary, the findings demonstrate that energy efficiency and the degree of energy efficiency matter. The lower risks associated with energy efficiency should be taken into consideration when underwriting mortgage risks. Major market stakeholders, such as FHA, Freddie Mac, and Fannie Mae, could encourage underwriting flexibility for mortgages on energy-efficient homes as well as promote energy efficiency to consumers in concert with their lending partners. Finally, Congress should consider the findings in its deliberations of current and proposed legislation to improve the accuracy of mortgage underwriting used by federal mortgage agencies, by ensuring that energy costs are considered in the underwriting process.

*An important way to encourage greater adoption of residential energy efficiency measures is for mortgage pricing or underwriting flexibility to reflect the savings that come as a result of energy efficiency.*

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[Download the research report at www.ccc.unc.edu](http://www.ccc.unc.edu) or [www.imt.org](http://www.imt.org)



## Institute for Market Transformation

The Institute for Market Transformation (IMT) is a Washington, D.C.-based based nonprofit organization dedicated to promoting energy efficiency, green building and environmental protection in the United States and abroad. Much of IMT's work addresses market failures that inhibit investment in energy efficiency.

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## UNC Center for Community Capital

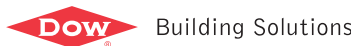
### UNC Center for Community Capital

The UNC Center for Community Capital at the University of North Carolina at Chapel Hill is the leading center for research and policy analysis on the transformative power of capital on households and communities in the United States. The center's in-depth analysis helps policymakers, advocates and the private sector find sustainable ways to expand economic opportunity to more people, more effectively.

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