



RESIDENTIAL ENERGY+ FINANCE THE FUTURE

INSIGHT BRIEF

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||||| HIGHLIGHTS

Home energy upgrades can disproportionately benefit very low-, low-, and moderate-income homeowners, ensuring their improved physical and financial health as well as improved stability in the broader financial markets. This paper explores the financial benefits of home energy upgrades and seeks to identify opportunities—such as the Federal Housing Finance Authority’s Duty to Serve rule—to link greater market access and transparency around home energy performance with improved financial health for homeowners and mortgage markets overall.

||||| INTRODUCTION

Across the United States, an increasing number of residential builders are constructing homes to higher energy efficiency levels. In 2014, 25% of newly constructed single-family homes were energy rated. And according to the [Harvard Joint Center for Housing Studies](#), more homeowners are incorporating home energy upgrades into their remodeling plans. However, home energy upgrades are not available to all homeowners, especially those of lesser means.

Often the barriers are financial. Home energy improvements can require a large amount of upfront capital, an asset to which many low- and moderate-income homebuyers and owners do not have access. In addition, energy bills make up a greater percentage of low- and moderate-income families’ monthly expenditures, therefore placing them at greater financial risk when energy rates suddenly increase, compounded by the inefficiency of the housing stock in which they reside.

A second obstacle low- and moderate-income homeowners and buyers face is that underwriters do not consider the cost of energy improvements if added to the mortgage against the typically larger energy savings. Not including operating expenses in the payment calculation currently used by underwriters artificially raises the payment-to-income ratio for a homeowner, a heavily weighted metric in mortgage underwriting. The appraisal is another key underwriting component that historically has not reflected the potential change in value from energy improvements.

Incorporating home energy use into underwriting practices, however, could simultaneously mitigate default risk and collateral risk while improving access to higher-quality building stock for low- and moderate-income homeowners.

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ENERGY EFFICIENCY REDUCES RISK AND INCREASES VALUE

A seminal study by the industry-respected [University of North Carolina's Center for Community Capital](#) analyzed actual loan performance data obtained from CoreLogic, the lending industry's leading source of such data. It utilized a national sample of about 71,000 ENERGY STAR and non-ENERGY STAR-rated single-family home mortgages, controlling for loan, household, and neighborhood characteristics. The study found that default risks are, on average, 32% lower in energy-efficient homes, controlling for other loan determinants.

A [recent whitepaper from the Appraisal Journal](#) found that the inclusion of "green" features in a home—including green designations and energy efficiency characteristics—demonstrated a statistically significant increase in a home's selling price in San Antonio, Texas. The "green" features increased closing prices by 2% and energy efficiency features increased resale values by roughly 6%.

In 2000, [researchers at Lawrence Berkeley National Laboratory](#) found that energy efficiency and renewable energy upgrades offered a tool for both families and insurance providers, reducing insurance losses and therefore the impacts of everything from extreme weather episodes, to ice and water damage, to power outages.

So while it may be clear that home energy upgrades improve homeowners' resilience, increase home equity value, and reduce default risk, one of the largest barriers to wider adoption of home energy upgrades is the upfront capital required to make these improvements, disproportionately resulting in wealthier homeowners capturing these benefits. Therefore, underwriters should take into consideration the lower risks associated with energy efficiency when underwriting all mortgages.

TRADITIONAL FINANCIAL PRODUCTS MUST CAPTURE THIS VALUE

A home sale represents a window of opportunity for influencing energy upgrades because it is a time when many owners are already planning improvements to their homes. With approximately [five million homes sold every year](#), most of the market will pass through this window within a decade, suggesting that the time of sale is a key intervention point. Also many existing homeowners will refinance their homes during this period adding to this total.

In 2014, financial institutions [underwrote roughly \\$1.8 trillion](#) in traditional mortgage balances. To put this in perspective, U.S. utilities spent roughly [\\$7 billion on demand-side management programs](#) in 2013 and financial institutions financed an insignificant amount of single-family energy upgrades.

But if the \$1.8 trillion in annual home mortgage loans was enabling whole-home performance upgrades, their underlying collateral could see incremental value improvements of up to 6%, or \$108 billion, all while mitigating the upfront capital cost barrier to adoption of home energy upgrades. Similarly, new mortgages with higher loan-to-value ratios for homes undergoing energy improvements could also help overcome this obstacle while reducing underwriters' long-term portfolio performance risk.

RECALIBRATING THE UNDERWRITING PROCESS

In the world of commercial real estate, most commercial buildings' values are derived from the cash flows they can produce. For example, if you are considering purchasing a multifamily building you would consider the annual revenues from the property, including rental income, as well as operating expenses such as insurance, taxes, utilities, and maintenance. The lender would also consider each of these cash flows and their associated risks when pricing and extending a loan.

Residential real estate markets do not work this way. They instead look at comparable transactions to determine a property's value and generally only consider the borrower's annual income and outstanding debt obligations when assessing cash flow risks. Operating expenses for the home are not even considered. If residential markets worked more like commercial markets, a lender would consider what the annual operating expenses of the home were over time. If the financial markets for residential mortgages incorporate energy risk into their calculations, there will be an increase in energy efficiency upgrades, as the difference in energy operating costs will impact lending decisions.

While residential underwriting and commercial underwriting have different criteria, the consideration of energy operating expenses as an important factor in the lending process is not a new concept. The residential market could adopt this additional criterion by making modest changes to the existing residential mortgage underwriting process while simultaneously reducing risk.

AN OPPORTUNITY FOR REFORM

Today a critical window of opportunity exists to benefit underserved customers and the mortgage lending industry through review and reform of the Federal Housing Finance Authority's (FHFA) approach to very low-, low-, and moderate-income mortgages.

The Housing and Economic Recovery Act of 2008 amended the Federal Housing Enterprise Financial Safety and Soundness Act of 1992 to require Government Sponsored Entities (GSEs), the Federal National Mortgage Association (Fannie Mae), and the Federal Home Loan Mortgage Corporation (Freddie Mac) to provide liquidity and capital for very low-, low-, and moderate-income family mortgages in three underserved markets:

- Manufactured housing
- Affordable housing preservation
- Rural markets

Following on this, FHFA is now seeking input on a proposed "Duty to Serve" rule, which "seeks to strike a balance between the requirement that the Enterprises (Fannie Mae and Freddie Mac) serve families in [underserved] markets and their continued safety and soundness." Specifically, FHFA is seeking comments on the characteristics and types of transactions and activities that should be considered to determine Fannie and Freddie's performance on their duty to serve these underserved markets.

Given that the GSEs purchase roughly 70% of home mortgages in the secondary market, reform of their policies will have significant ramifications on how the primary market operates.

||||| A PATH FORWARD

The GSEs have been justifiably preoccupied over the last eight years with major financial issues emanating from the Great Recession. However, they have not kept pace with the significant market and technological changes due to energy efficiency and other green trends. Their underwriting standards don't recognize the strong consumer preferences for such homes, the significant market share of new energy-efficient homes, the growing uptick in energy retrofits, and the array of newer cost-effective energy-efficient technology. What is needed is a more holistic approach to how financial markets consider home energy performance.

Given the GSEs' dual obligation to provide the markets with capital to make home ownership a possibility for as many U.S. citizens as possible and to ensure the continued "safety and soundness" of these capital markets, including home energy performance in the GSEs' underwriting guidelines would be a boon to all parties in the transaction while bringing greater stability to the financial markets. This is particularly true for low- and moderate-income homeowners, who are more impacted by energy costs and their variability. They need a mortgage process that allows them to include the upfront costs of needed energy efficiency improvements into their home purchase or refinance.

The "Duty to Serve" public comment period creates an unprecedented opportunity to bring a new approach to underwriting that helps the industry better assess and manage risk. As importantly, incorporating energy performance data into the underwriting process will make more capital available for home energy upgrades and energy-efficient homes, thus increasing comfort and health for homeowners across the country.

RECOMMENDATIONS TO THE FHFA

The Institute for Market Transformation and Rocky Mountain Institute (RMI) in partnership with the 55 participants from RMI's Residential Energy+ Workshop are collaborating to present the FHFA with a set of recommendations during the "Duty to Serve" public comment period. Over the next two months these organizations will draft their own comment letters or can sign on to group letters that help the FHFA and the GSEs understand the benefits of incorporating home energy performance in their underwriting process for both consumers (very low-, low-, and middle-income families) as well as the overall financial markets.

If you would like to join this effort, please contact financethefuture@rmi.org.

ABOUT ROCKY MOUNTAIN INSTITUTE

Rocky Mountain Institute (RMI)—an independent nonprofit founded in 1982—transforms global energy use to create a clean, prosperous, and secure low-carbon future. It engages businesses, communities, institutions, and entrepreneurs to accelerate the adoption of market-based solutions that cost-effectively shift from fossil fuels to efficiency and renewables. In 2014, RMI merged with Carbon War Room (CWR), whose business-led market interventions advance a low-carbon economy. The combined organization has offices in Basalt and Boulder, Colorado; New York City; Washington, D.C.; and Beijing.

ABOUT THE INSTITUTE FOR MARKET TRANSFORMATION

The Institute for Market Transformation (IMT) is a Washington, D.C.-based nonprofit organization promoting energy efficiency, green building, and environmental protection in the United States and abroad. IMT seeks to ignite greater investment energy efficiency in the building sector through activities including technical and market research, policy and program development and deployment, and promotion of best practices and knowledge exchange. IMT's efforts lead to important new policy outcomes, widespread changes in practice, and ultimately, lasting market shifts toward greater energy efficiency, with substantial benefits for the economy and the environment.