

Lenders' Property Standards and Energy Efficiency: The Vital Link for Affordable Housing

Philip Henderson

Natural Resources Defense Council

Energy efficiency is an important attribute of affordable housing. Whether housing is, in fact, affordable for an individual or family depends not only on the nominal rent or mortgage payment but also on expenses such as utility payments, transportation costs, and home maintenance. Even if the nominal rent or mortgage payment appears to be affordable, low efficiency housing can be expensive after accounting for energy expenses. Improving energy efficiency can reduce the total cost of housing, making housing more affordable for the occupant.

Energy efficiency is viewed as challenging in affordable housing because achieving higher efficiency often requires additional investment.¹ Whether it is installing extra insulation at the time of construction or making repairs to existing buildings, such as replacing worn weather sealing, making a better building usually adds expense to a project, and capital can be scarce in affordable housing.

But many efficiency measures are cost-effective in the most direct way because the amount of savings from reduced utility bills in a short period is greater than the cost of the measures. A homeowner or building owner does not “save” money in any real sense by refraining from installing cost-effective efficiency measures or making efficiency repairs—it merely shifts the added expense from construction costs to higher monthly utility expenses. In fact, the expense of buying the energy that will be wasted is often much greater than the cost of building better in the first place. This concept is basic. The problem is figuring out how to enable building owners to make the needed investments in a manner that makes sense.

In this paper, I describe several property standards related to energy efficiency that neatly fit the mortgage lending transaction. By incorporating such property standards into the conventional loan transaction, lenders can help to assure their borrowers – both in single family houses and multi-family buildings – have more affordable total housing expenses. Doing so will help to fulfill affordable housing goals. Most interesting, these measures also make sense from a lender’s risk management perspective: sensible efficiency standards make for more valuable properties that secure their loans.

In section I of this paper, I describe and substantiate the basis for the Federal Housing Administration’s (FHA’s) smart policy to require new single-family houses comply with

¹ For a description of the challenges facing energy efficiency installations and the varied strategies to surmount these challenges, see Namrita Kapur, Jake Hiller, Robin Langdon, Alan Abramson, “Show Me the Money: Energy Efficiency Financing Barriers and Opportunities,” Environmental Defense Fund, (Washington, D.C., July 2011).

modern building energy codes in order to be eligible to secure a mortgage loan insured by FHA. I argue this policy makes sense both to fulfill FHA's important affordable housing mission and as sensible risk management. Other institutions with affordable housing goals, such as Fannie Mae and Freddie Mac, should follow this smart policy.

In section II, I describe the basis for the Fannie Mae Green Refinance Plus program, which enables multifamily property owners to borrow additional funds to make needed efficiency repairs as part of a refinance loan. This exemplary program allows Fannie Mae to further its affordable housing mission and improve the properties securing its loans. It should be followed and expanded by other lenders and investors. I also describe the need for industry standards for maintenance of certain efficiency attributes of multifamily buildings so that building owners could better plan for the costs of making cost-effective efficiency repairs and build the expense into the capital plan for the building.

And, in section III, I offer three simple and inexpensive ways lenders could collect useful information on the energy efficiency level of properties that secure their loans.

I. Mortgage lenders should require new homes comply with a modern building energy code

a. Background building energy codes and cost-effectiveness

Building codes in the United States exist at the city and state level for single-family houses and multifamily buildings to assure minimum acceptable standards for construction.² The energy code portion of a building code relates to the features of the building that affect energy use, including the integrity of the building envelope, insulation, mechanical systems, and air sealing. Most city and state energy codes are based on model energy codes, such as those maintained by the International Code Council (ICC) or the American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE). The residential energy codes maintained by the ICC have been revised in three year cycles to account for new technologies, new methods, changes in the market, and increasing efficiency standards, among other things. About 42 states have modern minimum energy codes in place today.³

Requiring private home builders to meet minimum standards of construction is based on long-standing theories of public safety, public health, correcting market failures, and preventing hidden defects.⁴

2 "Building Energy Codes 101: An Introduction," US Department of Energy (Washington, DC, February 2010).

3 See U.S. Department of Energy, Building Energy Codes Program website, located at <http://www.energycodes.gov/adoption/states>.

4 Wendy Collins, Lesley Stone, and Lawrence Gostin, "The Built Environment and Its Relationship to the Public's Health: The Legal Framework," *American Journal of Public Health*, 3(9) (2003). Also see Sara Bronin, "The Quiet Revolution Revived: Sustainable Design, Land Use Regulation, and the States," 93 *Minnesota Law Review* 231, (2008).

Two realities in particular show why good energy codes are important to a well-functioning housing market. First, it is often difficult for a home buyer, a prospective tenant, an inspector, or an appraiser to identify the hidden construction elements that affect energy use (such as insulation levels, or the quality of the air sealing around windows) after the building is completed, and even more difficult if the space is occupied by the seller or an existing tenant. Building codes give prospective buyers and tenants confidence in the home purchase transaction, reduce transaction costs, and protect buyers who cannot invest in expensive inspections of the level required to test such hidden elements. Second, builders have the opportunity to implement measures during construction at a much lower cost than if the same measures were installed later by a homeowner or tenant.

Cost-effectiveness is a guiding concept for energy codes. Cost-effectiveness compares the added cost to implement a measure— such as sealing gaps around windows, which can require the builder to pay for more time, training, and materials— to the value expected from the added efficiency in the form of lower utility expenses.⁵ Cost-effectiveness tests typically use a hypothetical house of assumed attributes (e.g., square footage, construction type, specific component efficiencies) to then make determinations about cost and expected savings.⁶

For any particular homeowner or tenant, actual levels of energy use and actual utility expenses will vary depending on many factors, such as household size, type of appliances, usage patterns, and local rates. Estimates used in energy models are averages that are substantiated across a group of sufficient size, and are not intended to be estimates for individual occupants.⁷ The cost to build the reference house used in the

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- 5 The analysis does not subject each individual measure to cost-benefit analysis, but the package of measures is tested to determine expected savings and incremental cost over a baseline. In many cases, specific equipment may have interactive effects that are revealed when treated as a system. See Todd Taylor, Nick Fernandez, and Robert Lucas, “Methodology for Evaluating Cost-Effectiveness of Residential Energy Code Changes,” prepared for the US Dept. of Energy (Richland, Washington: Pacific Northwest National Labs, April 2012). Some of the added construction cost is due to quality control and training rather than additional equipment or materials.
- 6 Energy codes may provide prescriptive paths to compliance, which allow a builder to comply with certain mandatory measures plus an overall energy performance target. The builder may choose to implement more efficient measures in one area to balance lower efficiencies of other features. Actual incremental costs and cost-effectiveness of a home built to the code will depend on the specific construction attribute and actual costs. The pending 2015 version of the IECC includes such a rating-based path to compliance. See Institute for Market Transformation, “Fact Sheet RE 188-13: Adding a Rating-Based Compliance Path to the IECC,” Washington, DC, located online at www.imt.org/uploads/resources/files/Fact_Sheet_on_ERI_Proposal.pdf.
- 7 Blanchard et al., “Actual and Estimated Energy Savings Comparison for Deep Energy Retrofits in the Pacific Northwest.” (Richland, Washington: Pacific Northwest National Laboratory, October, 2012). Note that the models predict the relative energy use for a specific occupant with very high certainty; that is, an occupant in a house with a low efficiency rating is almost certain to have higher utility expenses than if the same occupant were in a house with a higher efficiency rating.

energy models can also vary based on region, economic conditions, and other factors.⁸ While values for any specific house may vary, cost-effectiveness determinations appear to provide a strong indicator of expected savings.

b. New Federal Housing Administration policy is a major step forward

FHA recently implemented a requirement that a house must meet or exceed the 2006 International Energy Conservation Code (IECC) in order to be eligible to secure a FHA-insured mortgage.⁹ This requirement only applies to mortgage loans for the purchase of a new house and does not apply to loans to buy existing houses. Congress required FHA to implement the updated energy code requirement in the Energy Independence and Security Act of 2007 (EISA), citing energy security, reducing energy waste, and more.¹⁰

Applying the 2006 IECC is a big step forward. FHA's previous policy required builder certification that the house was built according to the 1992 Council of American Building Officials (CABO) code—a badly out-of-date code that was seldom used by home builders in the market.¹¹

One reason it is a step forward is that some states have very weak or no energy codes in place. As of the date of this paper, about 40 states have energy codes in place that are as good as the 2006 code or better (i.e., 2009 or 2012), and 10 states have not yet adopted an energy code as stringent as the 2006 code.¹² Now, home builders in these 10 states will have an added incentive to comply with the 2006 code so that FHA borrowers are potential buyers.

Another reason it is a step forward is that many cities lack code enforcement. The fact is that a home buyer today in a state with a modern energy code could still obtain a house with defects, such as too little insulation or substandard appliances. FHA's requirement will add an additional level of assurance that a house purchased by an FHA borrower will meet the code.¹³

8 There is also variation across regions in the measurement of incremental costs of energy efficiency measures.

See Zachary Paquette, John Miller, Mike DeWein, "Incremental Construction Cost Analysis for New Homes, Building to the 2009 IECC," Building Codes Assistance Project, 2010); and, B. Polly, N. Krus, and D. Roberts, "Assessing and Improving the Accuracy of Energy Analysis for Residential Buildings," prepared for the US Department of Energy (Golden, Colorado: NREL, July 2011).

9 FHA requires a builder to sign a form certifying that the house meets property standards when a borrower applies for a loan to purchase a newly built house. HUD Form 92541 "Builder certification of Plans, Specifications, and Site."

10 See the Energy Policy Act of 2005, Section 153: Energy Efficiency Standards, and the Energy Independence and Security Act of 2007, Section 481: Application of International Energy Conservation Code to Public and Assisted Housing. 42 US Code, Sec. 12709(a)(1). Increasing energy productivity is a vital national goal, as evidenced by President Obama's Climate Action Plan, announced in June, 2013.

11 See US Department of HUD, Notice PIH 97-16 (HA) (April 17, 1997).

12 See map from Building Codes Assistance Project (BCAP), available at www.energycodes.gov/adoption/states.

Note that DOE issued on August 6, 2013, a request for information on methodology to assess code compliance in cities and states.

13 Federal statutes provide financial and criminal penalties for intentional misrepresentation on FHA loan documents. See 18 U.S.C. Section 1001, et seq.

FHA will now have a foundation in place to support adoption of more current versions of the code, such as the 2009 and 2012 versions, and soon to be approved 2015 version. The Department of Housing and Urban Development (HUD) is required to implement updated and approved versions of codes upon determining the updated version would not have an adverse effect on availability or affordability of housing.¹⁴ It is also expected that FHA will upgrade the applicable code required on the builder certification form to the 2009 IECC code in the near term.¹⁵ Making this determination is grounded on substantially better data with the 2006 code as a baseline.

c. *Quantifying savings for homeowners with FHA-insured loans*

Like all major mortgage lenders and investors, FHA has not tracked the energy code status of homes that secure the mortgages it insures. As a result, it is difficult to estimate how much of an advance compliance with the 2006 code would mean for new home buyers, as compared with business as usual or the “typical” new house securing loans insured by FHA today. The code status of the “typical” new FHA house is not known. There are, however, studies that provide directional guidance comparing a 2006 IECC house to the typical house in the market.

A 2007 study of housing in Gulf Coast states found a house built according to 2006 IECC would cost about \$618 more to build compared with a newly house built to market standards at the time, which was estimated to be the 2003 version of the IECC. If financed in a conventional mortgage, \$618 would mean an incremental annual cost of \$70. On the other side of the ledger, the house built according to the 2006 IECC would save about \$167 per year in reduced energy expenses. This means the owner or occupant would have annual savings of \$97. The report also found savings of \$360 per year when comparing a new house built according to 2006 code with an existing house built according to average market standards in 1995.¹⁶

Another 2007 study considered the cost-effectiveness of the 2006 IECC for homes built in Chicago, Illinois. It showed incremental costs of \$2,123 relative to a new house built according to market standards, with estimated annual energy savings of \$472. This produces annual savings for the owner or occupant of \$340. This savings amount was derived assuming the incremental cost was financed with a mortgage of 7 percent

14 Energy Independence and Security Act of 2007, Section 481: Application of International Conservation Code to Public and Assisted Housing. 42 US Code, Sec. 12709 (a)(1).

15 According to the US Office of Management and Budget, though the website www.reginfo.gov, HUD has submitted a determination that adopting the 2009 code “[does] not negatively affect the availability or affordability” of covered housing, which is the threshold test required by EISA to adopt the updated code version. See www.reginfo.gov, at RIN 2501-AD64.

16 Robert Lucas, “New Residential Energy Codes for the Gulf Coast.” Pacific Northwest National Labs, (Richland, Washington, January 2007).

annual percentage rate (APR).¹⁷

It is reasonable to expect that savings would be greatest for homebuyers in states without a modern energy code in place today and in states with low levels of compliance with energy code requirements. For homebuyers who otherwise would obtain a house built to lower standards, savings in the range of \$100 to \$400 per year appear reasonable, depending on the climate zone and house quality.

Savings for homeowners would be increased further if lenders required the 2012 versions of the IECC. Estimates of savings vary widely across climate zones for the 2012 code versions due in part to heating equipment upgrades that lead to substantial savings in colder climates. On average, occupants could expect to save about \$300 per year as compared to a house that meets 2006 IECC, and even more as compared to a house built to less stringent standards.¹⁸

d. Requiring that houses meet a modern code supports FHA's affordable housing mission

Affordability is at the heart of FHA's mission. Implementing property standards that require energy code compliance means an FHA borrower will obtain a house that is more affordable, thereby furthering FHA's affordability mission.

Some organizations, including some home builders, have argued that energy codes can hurt the very people affordable housing goals are intended to help, because higher standards raises the cost to build a house, which will reduce availability of housing.¹⁹ But as the cost-effectiveness analysis demonstrates, substandard housing is not "cheaper" in any real sense. Building a substandard house merely shifts the actual costs from the purchase price to the monthly utility expenses. A house built to lower energy code standards is more expensive when utility expenses are included.

If there is a negative effect on the availability of housing, it is the higher down payment required to purchase a house of higher value. For an FHA-insured loan, down payment amounts can be as low as 3.5 percent, and many borrowers will pay between 5 and 10 percent at origination. Assuming an incremental cost of \$3,000 for a house built to a higher code, such as the 2012 IECC, this could mean a higher down payment of about

17 Robert Lucas, "Assessment of Impacts from Adopting the 2006 International Energy Conservation Code for Residential Buildings in Illinois." (Richland, Washington: PNNL, January 2007). Number selected from Table 4.5 for a house with an unheated basement.

18 See V. Mendon, R. Lucas, S. Goel, "Cost-Effectiveness Analysis of the 2009 and 2012 IECC Residential Provisions – Technical Support Document, Pacific Northwest National Labs (Richland, Washington, April 2013). Energy savings will vary greatly by climate zone, and are estimated to average \$500 per year. Incremental costs also vary greatly by climate zone, and range from a low of about \$2,000 to a high of \$4,000, which produces increased loan payments of about \$144 to \$240 per year when financed in a 30 year mortgage at 6%. Note that the savings and incremental cost in this study results blend results from single and multifamily buildings into an average for the residential sector.

19 See report published by the National Association of Home Builders Research Center, "2012 IECC Cost Effectiveness Analysis" (Upper Marlboro, Maryland: 2012). NAHB estimated the incremental cost of meeting the 2012 code, over the 2006 baseline, to be about \$7,000 on average – a substantially higher estimate than found in the report of Mendon, et al. cited above.

\$150. In comparison, an average homeowner would realize savings of \$300 in the first year alone, after paying the higher mortgage cost of the incremental cost of construction to meet the code.²⁰

The hurdle of a higher down payment could also potentially be addressed by targeted utility programs that contribute directly to offset a builder's costs to meet the code.²¹

e. Energy codes as prudent risk management for FHA and all mortgage investors

In addition to fulfilling FHA's important affordable housing mission, FHA's energy code policy makes sense purely on the grounds of prudential risk management. Assuring that loans are secured with houses built to modern energy codes will create better loans for FHA than if loans were secured by houses built to less stringent standards.

Houses built according to a modern energy code should be more valuable than houses built according to less stringent standards. The added value is derived from fundamental attributes—better materials, better workmanship, and lower utility expenses for the homeowner or occupant. The evidence for lower utility expenses is contained in the very cost-effectiveness research that informed the code adoption process and is cited in the previous section of this paper. There is evidence that the market recognizes these fundamental values, although this evidence has been slow to emerge and should increase with market trends toward better availability of information on energy usage.²² A recent study found evidence to support the conclusion that houses with energy efficiency labels in California are about 9 percent more valuable.²³

House value is known to be a key determinant of loan performance. At origination, the concept is reflected in loan-to-value metrics, but the actual or real loan to value (LTV) of a loan varies over time as market value of the property changes.²⁴ Some argue this is the dominant determinant because default should be rare if the house can be

20 See V. Mendon, et al. "Cost-Effectiveness Analysis of the 2009 and 2012 IECC Residential Provisions."

21 "Utility programs refers to incentive payments and rebates many utilities pay to market participants to implement measures that deliver increased energy efficiency to the electricity or gas systems.

22 Energy efficiency levels, including code compliance, have not traditionally been included in property appraisals or inspections but are receiving increasing attention. Appraisers often do not account for whether the house is built according to code, since it has been difficult for the appraiser (or automated valuation systems) to make adjustments between a subject house and comparables.

23 See Mathew Kahn and Nils Kok, "The Value of Green Labels in the California Housing Market." (Report published by US Green Building Council, July, 2012). A 2013 paper found evidence in homes sales data for "Energy Star" labeled homes built between 1995 and 2006 garnering a premium, but did not find a premium for homes built and sold after 2006, although the effects of the major housing downturn that began in 2007 (and arguably prior) suggest this question should be reexamined with data from a more stable market. Margaret Walls, Karen Palmer, and Todd Gerarden, "Is Energy Efficiency Capitalized into Home Prices? Evidence from Three US Cities," (Washington, DC: Resources for the Future, July 2013).

24 For an interesting analysis of how LTV intersects with other factors, including FICO score and DTI, see Ken Lam, Robert M. Dunskey, Austin Kelly, "Impacts of Down Payment Underwriting Standards on Loan Performance Evidence from the GSEs and FHA portfolios," Fed. Housing Finance Admn., Working Paper 13-3 (Washington, DC, Dec. 2013).

sold for more than the loan balance.²⁵ If a house built according to a modern code retains its value during the life of a loan better than houses that are otherwise comparable (but with hidden defects, such as too little insulation), this should deliver value to the lender or holder of credit risk in the form of higher resale value of the property, reduced risk of default, and higher resale value in the event of defaults.

A second reason why the FHA policy should be good risk management for FHA is because the house is more affordable for the homeowner. To determine eligibility for a mortgage loan, lenders typically examine several household expenses in the loan application process, including homeowners insurance, car loan payments, credit card payments, student loan payments, and property taxes to determine if the borrower has sufficient income to support these payments plus a new payment on the applied-for loan. If these household expenses are, to some extent, determinants of loan affordability, then utility expenses should operate similarly. Reducing household expenses should work to increase income available for a mortgage payment.²⁶

The average amount of annual savings on utility bills appears fairly small relative to the average borrower's total income, and this has caused some observers to doubt that reduced energy expenses are a material factor in affordability. But for several reasons, the energy savings due to high energy efficiency could, in fact, be material to the household budget of a distinct subset of borrowers, though it is important to note that more research on this point is needed.

First, as noted above, homeowners can experience a wide range of actual utility expenses in a regular distribution, so a portion of total borrowers will have utility expenses considerably higher than the average. What is known about the distribution of expenses suggests a significant portion of homeowners and occupants could have expenses twice the average amount.²⁷ Second, even if the amount of utility expenses appears modest as a portion of any borrower's total income, the expenses may be material to the household budget as a portion of income after payment of other essential expenses and debts. For many families, money available for utility expenses could compete dollar for dollar with income available for rent or a mortgage loan payment.

More studies are needed to validate whether the lower energy expenses affect mortgage risk, but it seems reasonable to expect that reducing energy expenses will, for some subset of borrowers, make the mortgage more affordable.

25 See John Y. Campbell and Joao F. Cocco, "A Model of Mortgage Default." NBER Working Paper No. w17516 (NBER, October 2011).

26 This conclusion is described in and supported by Roberto Quercia and Janneke Ratcliffe, "Home Energy Efficiency and Mortgage Risks," (University of North Carolina at Chapel Hill and Institute for Market Transformation, March 2013). The authors found Energy Star homes had lower delinquencies and default rates, and within the group of ENERGY STAR homes, delinquencies and defaults declined with increasing efficiency levels.

27 See Philip Henderson, "New Data from EIA Shed Light on Residential Energy Expenses," Natural Resources Defense Council website (http://switchboard.nrdc.org/blogs/phenderson/new_rec_results_shed_light_on).

In Summary, for a lending institution with an affordable housing mission, including not only FHA, but also Fannie Mae and Freddie Mac,²⁸ a policy requiring that newly built houses comply with modern energy codes makes sense as a way to reduce the total cost of homeownership for borrowers. The policy also makes sense as a matter of risk management and offers public benefits that should be valued by these institutions.²⁹

II. Property standards for multifamily affordable housing

Lenders making mortgage loans secured by multi-family buildings have a strong interest in assuring that buildings securing their loans are built in compliance with modern energy codes, for many of the same reasons set forth above – it helps further the lender’s affordable housing mission by reducing expenses for occupants and it is sensible risk management.

It is also essential to assure buildings are kept in good repair during the term of the loan. Degradation of a property can cause higher utility expenses for occupants and reduce the value of the building.³⁰ Many efficiency repairs can be cost-effective, such as fixing air leaks, repairing worn pipe insulation, retuning a boiler, and tuning water pumps –these repairs deliver savings in the form of reduced utility bills in an amount greater than the cost of the work.

Multiple reports suggest the total cost of housing for many affordable-housing occupants is inflated by paying the cost of wasted energy used in the building.³¹ Most of the country’s vast stock of multifamily buildings was built before energy codes were even adopted.³² Multifamily buildings, especially large ones, require regular upkeep as time, occupancy, and weather cause buildings to degrade.

The central concept in this section II is the same as in section I: When a building owner forgoes making cost-effective efficiency repairs, this does not lead to real savings, but simply

28 Freddie Mac describes its affordable housing mission on its website as follows: “As part of our public mission, Freddie Mac has a responsibility to provide financing that helps families buy or rent decent, affordable housing.” See http://www.freddiemac.com/corporate/company_profile/affordable.html. Fannie Mae uses similar language: “Fannie Mae helps provide financing to enable Americans to buy or rent quality affordable housing.” See “A Report on Fannie Mae’s Mission Activities,” April 2011, page 9, located at www.fanniemae.com/resources/file/aboutus/pdf/FM_Mission_Report.

29 Most houses have useful lives longer than 50 years. The annual benefits of better construction will be realized by subsequent owners or occupants, and their lenders, over a long period, and federally-related housing institutions have a high likelihood of holding the risk on the loan in subsequent transactions. Confidence in the condition of hidden elements of the construction will reduce uncertainty and transactions costs for subsequent purchasers, lenders, insurers, and utility companies with regard to expected energy use. It is also worth noting that the finance charges on the incremental cost as part of the purchase mortgage financing are likely to be cheaper financing home improvements to remedy the defects at a later date.

30 Multifamily lenders have long recognized the importance of assuring a building is maintained generally and many require annual inspections. See Fannie Mae Instructions for the PNA Property Evaluator, Form 4099 (located at www.fanniemae.com/multifamily/current-guide-forms).

31 See Anne McKibbin, Anne Evans, Steve Nadel, Eric Mackaras, “Engaging as Partners in Energy Efficiency: Multifamily Housing and Utilities.” (Washington, D.C.: CNTenergy and ACEEE, January 2012); and, “Quantifying Energy Efficiency in Multifamily Rental Housing,” published in HUD Newsletter Evidence Matters: Transforming Knowledge into Housing and Community Development Policy, Summer 2011, available at www.huduser.org/portal/publications/EM_Newsletter_Summer_2011_FNL.pdf; and “The Benefits of Energy Efficiency in Multifamily Housing.” (New York: Deutsche Bank USA, January 10, 2012).

32 See Energy Foundation, “US Multifamily Energy Efficiency Potential by 2020.” (Benningfield Group, Inc., October 19, 2009).

shifts the cost to the tenants in the form of higher monthly utility expenses. The challenge is assuring owners of affordable housing buildings that they will recover the cost of making cost-effective repairs.

a. Typical incentives for multifamily building owners

In most multifamily affordable housing buildings, tenants pay the cost of utilities either through separate utility meters on systems serving tenants spaces or indirectly through an allocation of the utility expense for the whole building—or a combination, such as a building with a central boiler and window-unit air conditioners. In some buildings, the owner receives an allowance from a housing agency to compensate for some or all of the utility expenses that tenants otherwise would pay.

These factors mean that many building owners do not realize direct savings in the form of reduced utility expenses after making efficiency repairs; the owner bears the cost of the repair, but lower utility expenses are paid by occupants (or the agency subsidizing the expenses). This outcome is often referenced as the “split incentive.”

It is necessary to be more specific about why an owner might not invest in efficiency than to simply invoke the “split incentive,” because even where the owner would not realize utility savings directly, the owner should have incentives to make certain efficiency repairs and improvements to keep the property in a condition to compete for tenants and maintain or potentially increase rents.

Theory suggests tenants with good information about rent and expenses should be willing to pay higher nominal rent to be in a building with lower utility costs. But there are many reasons why this outcome is interrupted and owners might not think about making certain efficiency repairs as a way to maintain property value and rents.

An important factor is that it is difficult for owners to raise rent in most multifamily buildings, even market-rate buildings, and doing so can take time. A plan to raise rent is attended by uncertainty about market acceptance of higher rent for any given building. Not all tenants will make decisions with expected utility bills in mind; some tenants will simply think about nominal rent. The lack of reliable information about expected future utility expenses appears to be an important factor in this dynamic.³³

Another factor is that in some affordable housing buildings, commitments related to rental increases and assistance from HUD or state housing agencies in the form of rent subsidies tied to the amount of utility expenses.³⁴

33 Reliable information about expected utility expenses is essential for tenants and owners be able to negotiate for nominal rents to reflect total rents. Policy changes appear to be moving to deliver better information tenants, as many cities are adopting benchmarking and disclosure policies. See e.g., NYC LL84 (2012) and “PlaNYC”, located at <http://www.nyc.gov/html/planyc2030/html/about/ggbp.shtml>.

34 See Lori Bamberger, “Scaling the Nationwide Energy Retrofit of Affordable Multifamily Housing: Innovations and Policy Recommendations,” (A report by the What Works Collaborative: December, 2010). This report states that HUD provided \$1.5 billion in annual operating subsidy costs for utilities and \$471 million in annual utility allowances for residents of public housing.

For these reasons, some owners of multifamily properties might be hesitant to invest in making efficiency repairs and improvements. But these realities also suggest that some building owners do have incentives to make efficiency repairs and improvements – specifically, when doing so is likely to be valued by tenants as an input to total rent and accounted for by appraisers.

Especially in affordable housing buildings, owners will need assurances that investments in efficiency repairs will likely be recovered in increased rent or higher property value.

It is important to note the ongoing work of HUD and housing agencies to correct how rental subsidies in certain properties account for utility expenses so that owners do not have disincentives to make investments in efficiency repairs and improvements.³⁵

b. Expand the exemplary Fannie Mae Green Refinance Plus program

Fannie Mae’s Green Refinance Plus loan program is responsive to the realities of the market. It allows a building owner, at the time of a refinance transaction, to obtain additional funds than would otherwise be available under typical loan guidelines, if the funds are used to make certain efficiency repairs. It is offered in conjunction with FHA pursuant to a risk-sharing agreement and is limited to certain affordable housing buildings.³⁶

The centerpiece of the program is a “Green Needs Assessment” (GNA) of the building. In addition to inspecting the building for typical conditions related to safety, integrity of systems, and more, the owner would obtain an inspection performed by a person with experience in energy audits. The GNA is designed to specifically identify repairs and improvements that will improve the building and reduce energy expenses – measures that are candidates to be funded by the loan -- and provides an estimate of energy savings associated with these measures.

Fannie Mae will allow the owner to borrow an additional 5 percent to make efficiency repairs identified in the GNA. Maximum loan-to-value (LTV) for eligibility is then adjusted from 80 percent to 85 percent and the debt service threshold is reduced from 1.20 to 1.15 to accommodate the extra loan funds.

The program is grounded in the understanding that efficiency repairs and improvements will work to enhance the value of the building—increasing the useful life and improving financial performance through higher occupancy and ultimately higher rents, even if these adjustments take time to materialize. For the holder of credit risk, higher rents, lower maintenance expenses, and higher occupancy have concrete value and are very real, even if near-term savings from reduced utility expenses accrue to tenant utility accounts.

³⁵ See descriptions of several housing initiatives on the HUD Sustainable Communities website.

³⁶ See Fannie Mae Fact Sheet, “Multifamily Green Initiative,” Second Quarter, 2012 (located at: www.fanniemae.com/content/fact_sheet/wpgreen.pdf). The product is available for properties that are at least 10 years old that will remain subject to affordable income and rent restrictions for the loan term (at least 10 years).

Making “Green Refi” loans on properties that would otherwise be approved appears to make sense purely from a prudential perspective for the holder of credit risk to maintain and improve the property securing its loan, although more research is needed on the performance of these loans. Lenders should also be aware that in many places, electric and gas utilities will contribute to the cost the efficiency repairs and improvements.³⁷ Thus, by funding the project, the lender is effectively enabling outside funds to go to improve the property securing its loan.

The program also has a compelling value from an affordable housing perspective. For this reason, FHA’s main multifamily programs (sections 221 (d) (4)) should incorporate the GNA into refinance transactions and offer owners a “Green Refi” option to make identified repairs. Fannie Mae and FHA should consider expanding the program to purchase transactions to improve properties. Freddie Mac, the other federally chartered enterprise with an affordable housing mission and a substantial multifamily line of business, should also follow suit.

It is important to emphasize the need for reliable results from these programs so that the assumptions can be confirmed or terms adjusted in light of results. After a sufficient number of loans have been made, Fannie Mae and FHA should study and report on the results to provide the market with substantiated conclusions.

c. Establish maintenance standards for multifamily buildings

Currently, there are few standards for multifamily building owners to use to gauge efficiency repairs. The Fannie Mae program uses a GNA performed by a qualified inspector to identify needed efficiency repairs, but only if the owner seeks to obtain loan funds to make identified repairs. What is missing in the market are standards for efficiency maintenance, such as a minimum standard for air sealing and periodic testing of central heating and cooling systems. Such a standard could then be used to identify basic repairs that keep a building in good working order, are likely to be cost-effective from a utility-expense perspective, and do not have unreasonable capital requirements.

A key benefit of such a standard is to allow the building owner to plan and budget in advance for the cost to keep the building in compliance. By accounting for an efficiency repair budget in the capital plan for a building, the owners can incorporate into the rent a premium needed to fund a reserve account, avoiding the need for owners to grapple with obtaining new financing or trying to increase rent to recover the cost of making needed repairs.

If a reasonable standard for efficiency maintenance were in place, programs that provide government contributions to affordable housing developers, such as the Low Income Housing Tax Credit program and programs operated by state housing finance agencies, could then require a commitment from developers or owners to maintain the building in conformity with the referenced standards.

³⁷ See McKibbin, et al. “Engaging as Partners in Energy Efficiency: Multifamily Housing and Utilities.”

One possibility is for HUD, an agency with multifamily expertise, to establish a set of standards for efficiency maintenance, possibly starting with standards used by the Weatherization Assistance Program.³⁸ Any such standard should be established with input of building owners, investors, and building engineers, and potentially the buildings experts at the U.S. Department of Energy.

As with code requirements for new construction, cost-effectiveness must be an essential concept for any such efficiency maintenance standard. Required repairs must be carefully screened to be cost-effective so that reductions in utility expenses are likely to exceed the rent premium that funds the repairs. One possible ingredient in any standard could be an owner's discretion to avoid a repair if the owner has a reasonable basis to believe it would not be cost-effective after accounting for the savings that would accrue to tenants.

III. Lenders should use property standards to obtain better information on energy expenses

An examination of how energy efficiency is treated, in both single-family and multifamily mortgage loans, reveals that lenders and investors have remarkably little information about the utility expenses and usage in properties that secure their loans.³⁹

Lenders and financial institutions were leaders in "big data" long before the phrase became part of the lexicon.⁴⁰ They were early adopters of information technology and business intelligence to improve processes and make better decisions about customers and transactions. Credit reporting agencies are capable of delivering deep information about customers to consumer lenders in seconds at the point of sale, and automated valuation models use information from many disparate sources. The ability to gather information has increased at an astonishing rate in recent years, and the cost of doing so has steadily decreased. Yet, mortgage lenders and investors today appear to have only coarse information from surveys on the energy use in homes and buildings.

Below are three simple and inexpensive measures lenders could take to gather significantly better and meaningful information about property energy usage. With the better data that would accumulate over time, lenders should be in a position to make better decisions.

First, mortgage lenders could incorporate into conventional loan documents borrower permission to obtain utility usage information from applicable utilities, just as lenders today obtain borrower permission to obtain credit reporting information and tax information.

38 US Department of Energy, "National Weatherization Training and Technical Assistance Plan." (Washington, DC: Weatherization Assistance Program, December 2009), available at www1.eere.energy.gov/wip/pdfs/wap_tta_plan.pdf.

39 See Victoria Doyle and Abhay Bhargava, "The Role of Appraisals in Energy Efficiency Financing," US Dept. of Energy (Washington, DC: 2012). And, Todd Trehubenko and Deidre Schmidt, Multifamily Utility Usage Data: Issues and Opportunities (New York: Recap Real Estate Advisors and Living Cities, May 2011).

40 For a description of early uses of "big data" by lenders, see Ruediger Adolf, Stacey Grant-Thompson, Wendy Harrington, and Marc Singer, "What leading banks are learning about big databases and marketing," *The McKinsey Quarterly*, number 3 (1997); and, Kenneth Collier, et al. "A Perspective on Data Mining," Center for Data Insight, (Ariz. State Univ: July 1998).

Even if lenders do not have plans to obtain such information from any external sources, with permission in place, lenders could later assess opportunities to obtain the information.

Second, multifamily mortgage lenders could require property owners to report the energy use of the subject property to a benchmarking tool and make the results available to the lender. Benchmarking involves delivering utility data to a system that records the usage and delivers a score showing how a subject property compares to other similar properties in the system.⁴¹ This process is routine for many building owners today and can be largely automated.

Third, mortgage lenders could automatically collect information on property efficiency level when such information is available in systems, such as Energy Star status and home energy ratings. Efficiency fields and ratings are increasingly included in MLS systems and could be obtained by lenders integrating to these systems or as part of the appraisal.⁴²

As with other proposals in this paper, gathering better information about utility expenses in the properties that secure their loans should enable lenders, as well as major financial institutions to make more informed decisions, and thereby improve risk management as well further affordable housing goals.

Conclusion

Improving the efficiency levels of housing delivers multiple values—occupants’ utility expenses are reduced, the owner obtains a more valuable building, the lender’s loan is secured by more valuable property, the utility obtains valuable efficiency resources, and the public avoids toxic pollution from wasted energy in housing that does not meet minimum standards.

These values are compelling for lenders or financial institutions with affordable housing goals, due to the reduced expenses for occupants. The concepts also appear convincing for all mortgage lenders and investors due to the benefits of more valuable properties and reduced borrower utility expenses.

FHA, Fannie Mae, and Freddie Mac, in particular, should evaluate how energy efficiency could fit into property standards in all of their conventional loan products.

Philip Henderson is a senior financial policy specialist for the Natural Resources Defense Council in Washington, D.C.

41 The US Environmental Protection Agency maintains the industry-standard system, known as Portfolio Manager, which is the basis for the Energy Star for Buildings program. Moreover, lenders maintain systems that can interface with Portfolio Manager and obtain results that can be used to evaluate properties.

42 Fannie Mae and Freddie Mac have developed a Uniform set of appraisal data fields to obtain on loans. See Fannie Mae and Freddie Mac Uniform Appraisal Dataset Specification, located on the Fannie Mae website at www.fanniemae.com/singlefamily/uniform-appraisal-dataset.