

Saving on energy bills: Meeting families in the middle

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(PhysOrg.com) -- A study released today by researchers at Lawrence Berkeley National Laboratory (Berkeley Lab) identifies steps that energy efficiency program managers can take to deliver significant savings on home energy bills to middle-income households.

“Middle-income households have been hit hard by the recent recession, and sagging home prices have undermined the traditional reliance of middle-income households on home equity for financing home improvements,” says Berkeley Lab’s Mark Zimring, a researcher in the Environmental Energy Technologies Division (EETD) and co-author on the report. “It is really difficult to motivate them to invest in improving the efficiency of their homes, and to overcome the up-front cost barrier once they’re motivated.”

Middle-income households—those making about \$32,500 to \$72,500 per year—account for one-third of total U.S. residential energy use and figure prominently in meeting energy savings targets that now exist in most states, as well as reducing air emissions and managing demands on the grid.

To achieve those targets, utilities and governments are beginning to look beyond typical residential [energy efficiency](#) programs that discount CFLs or provide rebates for high-efficiency appliances and equipment. Increasingly, they are turning to programs that improve the energy efficiency of the entire house—by sealing up leaks, reducing plug loads, adding insulation, and replacing inefficient heating and cooling systems. These more comprehensive programs typically offer the same incentives for all non-low-income households and usually require customers to pay a significant portion of the costs.

“Because comprehensive home energy improvements often cost \$5,000 to \$15,000 per home, higher income households are simply better positioned financially to take advantage of those programs,” says Merrian Borgeson, co-author and researcher in EETD. “Persuading middle-income households to undertake these whole home energy improvements has proven challenging, and with declines in median income and home equity—coupled with rising energy costs—that challenge has become more acute.”

Delivering comprehensive energy efficiency improvements to just one-third of these middle-income single-family households could save roughly as much energy each year as is used by every home in Houston, Phoenix and San Francisco, for as long as the more efficient measures last.

“This economic middle of the country is highly diverse. One size does not fit all,” said Ian Hoffman, co-author and EETD researcher. “The

keys to energy and cost savings in the residential sector are flexibility and innovation in what efficiency programs offer these households and a framework of policies that supports delivering these savings.”

The Berkeley Lab report offers recommendations for efficiency programs:

- **Solve a Problem Households Recognize**— Messaging matters, and middle-income households may be motivated to participate in energy efficiency programs for different reasons than their higher income peers. In addition to reducing energy costs, framing efficiency as an investment in maintaining and increasing the value of one’s home, as an opportunity to replace aging or broken equipment, or to address health and safety issues may all be powerful motivators for middle-income households.
- **Use multiple pathways to achieve deep energy savings in homes**—Comprehensive home energy improvements are not affordable in today’s economy for some middle-income households. Residential energy efficiency program administrators should also offer lower-cost pathways that start with the basics—air sealing, insulation, and duct repair—and then encourage the most efficient options when households replace furnaces, air conditioners or other equipment.
- **Reduce household risks**—Middle-income households need energy efficiency investments to pay for themselves. They typically have less discretionary income to pay for these investments if energy savings or increases in home value are lower or materialize slower than expected. Efficiency [program managers](#) should consider tiered work packages and financial incentives based on income to reduce household risk and incentivize deep energy savings.
- **Increase access to capital**—The recession has reduced middle-

income households' access to capital. Efficiency programs can use alternative underwriting criteria (e.g., utility bill repayment history) to responsibly increase the number of middle-income households who qualify for financing. Credit enhancements such as loss reserves can reduce lender risk and encourage them to serve a broader portion of the residential market. Efficiency program administrators should also work with the financial community to gain more experience with innovative financing tools that link loan repayments to utility bills, properties, and paychecks.

- **Leverage other public programs and funding**—In many areas, energy efficiency can be integrated into larger public endeavors, such as neighborhood revitalization, housing rehabilitation and economic development. Some middle-income homes have structural or health and safety problems that may be best addressed by other public initiatives and funding sources. Coordination and collaboration among social service agencies could increase the efficiency of service delivery and enhance household outcomes.

The report also describes policy options that could bring more focus and funding to bear on unlocking this resource. States and utility regulators can adopt targets for energy savings or require utilities or program administrators to acquire all cost-effective savings; these can provide the impetus to seek out savings economy-wide, including in middle-income [households](#).

Local, state, and federal governments can implement building codes and appliance and equipment efficiency standards to complement the demand pull of efficiency programs with a market push.

Governments can also adopt energy labeling, disclosure and upgrade regulations to make [energy](#) efficiency more visible—and valuable—in the home real estate market.

Provided by Lawrence Berkeley National Laboratory

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