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The E2e Project Study of Five Michigan Weatherization Agencies During ARRA

The E2e Project, a joint effort of the University of Chicago, MIT, and UC Berkeley, released a study on the operation of the ARRA Weatherization Assistance Program (WAP) in an area of Michigan served by five community agencies. In a working paper, the authors describe a study focused on three issues: the effectiveness of an outreach program using canvassers; to confirm the fact that computer-based audits and engineering analysis consistently overstate actual energy savings by a substantial margin; and, the cost-effectiveness of using WAP as a greenhouse mitigation strategy. The study was recently the focus of stories in or on the Associated Press, The New York Times, The Wall Street Journal, Vox, Bloomberg, The Washington Post, Phys.org, Fox, ABC, and CNN.

One of the authors was quoted as saying, "I would not feel comfortable generalizing from our study in Michigan." Unfortunately, the press has done just that.

1. The authors claim that the study is 'a first of its kind' and 'the gold standard'. However, it fails to follow the protocols used by the weatherization and home performance industry to measure effectiveness. Sometimes the first time isn't golden.
2. The opening of the paper is devoted to a recruitment experiment using paid canvassers to convince low income families to enroll in the weatherization program. They were not very good at it, probably because people did not trust them. Our agencies have deep relationships in the community. People trust us. Nationwide the network weatherized over 800,000 homes during ARRA, serving 25% more families than the program goal. We found plenty of clients. Now that the ARRA money is gone, 1-2 year waiting lists are again common.

3. The study did not include over 30,000 weatherized homes as some have reported. The savings study appears to be based on around 10% some of the 1,600 homes actually weatherized during the early days of ARRA. The huge infusion of funding affected quality initially. Other states had a larger training infrastructure; Ohio operated four training centers.
4. The study says that over 34% of the units had furnace replacements. Furnace replacements, after insulation and air sealing have been completed, are almost never cost-effective. Furnaces are replaced as a health and safety measure because they are not working – ‘no heats’ we call them -- and paid for with other funds. The study authors somehow missed this and classed one of the most expensive measures as an efficiency investment, leading to the assertion the program has a poor return on investment.
5. Savings exceed the cost of air sealing, attic insulation, sidewall insulations, hot water, and electric baseload savings measures such as refrigerators and lighting. Those are the services that evaluation professionals measure.
6. Agencies don't do windows unless they are broken. Payback is over 35 years. It is a health and safety measures.
7. Engineering models, including NEAT and the model developed by Berkeley for DOE's new Home Energy Score program, regularly overstate savings and have other flaws. Everyone in the industry knows it. Audits are a tool to identify high end uses, not to predict outcomes, and do not use a 6% discount rate to determine net present value.
8. In Ohio, weather-normalized bill analysis shows natural gas savings for low income families in the 28-34% range in independent studies funded by utilities looking at combo units – units combining federal and utility funded measures. The numbers have been consistent since 1995. Electric savings to the families are in the 8-12% range. Programs in other states are equally effective, though savings will vary by climate, housing stock, and other variables. A home that is weatherized well will provide comfort, prevent health problems, and save more in energy bills than the cost of the service.