

SESSION 3C

MARKETING AND PERFORMANCE ISSUES IN ENERGY EFFICIENT HOME PROGRAMS

Moderator: Ben Bronfman, Quantec. LLC

PAPERS:

ENERGY STAR[®] Homes and Green Building Programs: Can We Have a Successful Partnership?

Betty M. Tolkin, Nexus Market Research, Inc.

William Blake, National Grid

Stephen Bonanno, NSTAR Electric and Gas

Lynn Hoefgen, Nexus Market Research, Inc.

Dorothy Conant, Independent Consultant

New ENERGY STAR[®] Homes Requirements: Is It Harder To Recruit And Keep Builders

Dorothy Conant, Independent Consultant, Hudson, MA

William Blake, National Grid, Northborough, MA

Stephen Bonanno, NSTAR Electric and Gas, Westwood, MA

Betty Tolkin, Nexus Market Research, Inc., Cambridge, MA

Cracking the Code for Residential New Construction: Using End-Use Metered Data to Revise Energy Estimates of Compliance Models

Clark Bernier, RLW Analytics

Jarred Metoyer, RLW Analytics

Putting Codes Into Action: How Newly Updated Building Codes Translate Into Practice

Michelle Levy, Quantec, LLC, Portland, OR

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Lynn Benningfield, The Benningfield Group, Folsom, CA

SESSION SUMMARY:

This session will focus on the challenges associated with the implementation, performance and code compliance associated with residential new construction. This session will focus on the lessons learned from a set of evaluations of conducted in New England, California, and a sample of state programs across the country.

The first paper, “ENERGY STAR[®] Homes and Green Building Programs: Can We Have a Successful Partnership?”, reports on an evaluation of the 2006 evaluation of the Massachusetts ENERGY STAR[®] Homes Program, for the first time, specifically addressed the relationship between ENERGY STAR[®] Homes program participation and green building through interviews with 40 builders and eight multifamily project developers and a telephone survey of 200 new home buyers.

The study concludes that the opportunity for Green building programs have much to gain by working with ENERGY STAR[®] Homes Programs. Emphasizing energy efficiency and the resulting savings on energy bills will attract larger numbers of consumers and builders that will allow these programs to become more of a mainstream factor in new home construction. While it is important to remember that while more home buyers are familiar with green building than with ENERGY STAR[®] Homes, the vast majority also consider energy efficiency to be part of the former.

The second paper, “New ENERGY STAR® Homes Requirements: Is It Harder to Recruit and Keep Builders,” examines issues associated with one of the biggest challenges facing ENERGY STAR® Homes programs: convincing builders to participate, especially under the new, stricter EPA requirements for ENERGY STAR® certification. This is especially true in markets where builders believe they are already building energy-efficient homes; most builders, at least until the current slowdown in the housing market, have not had any problem selling their homes; and consumers are not demanding more energy-efficient homes.

The authors spoke with over 10 state and regional program managers, as well as participating and non-participating builders and concluded that while there are difficulties in maintaining builder interest, there are several strategies for maintaining builder interest. Among them are adding participation paths; providing training on duct sealing and/or air infiltration; encouraging builders to install ducts in conditioned space to avoid the need for duct testing; and encouraging the use of better insulation materials. Going forward, several programs are considering adding green building, solar, and/or renewable program components to provide builders with more ways to differentiate their homes from their competitors’ homes. In addition, some programs have introduced incentives for builders whose homes either fail to meet ENERGY STAR® requirements or who are not interested in trying to meet all the requirements for ENERGY STAR® certification.

The third paper, “Cracking the Code for Residential New Construction: Using End-Use Metered Data to Revise Energy Estimates of Compliance Models,” examines the reliability of the primary code compliance model used in California for the 2002-03 and 2004-05 California Energy Star® Homes programs. The authors conducted extensive end-use metering of cooling, heating, and water heating energy usage of 101 single family and 99 multi family units. These data were used to adjust the site usage estimates obtained from the compliance models to more accurately reflect the energy consumption of the three program-impacted end uses (cooling, heating, and water heating) in the participant homes.

Results showed the compliance models over-predicted usage by 25-70% for single family homes, depending on the end use. The authors present several recommendations for modifying the compliance tool, but suggest that it might be simpler to accept that while compliance models are useful for relative applications such as performance-based compliance or relative-performance-based program participation, they may not be the best tools for estimating energy usage.

The final paper in this session, “Putting Codes Into Action: How Newly Updated Building Codes Translate Into Practice,” describes the methods employed and empirical findings from one study aimed at quantifying non-compliance rates for a sample of newly codified (and newly code-updated) building measures in California.

This study found a range of noncompliance rates, from 28% ($\pm 3\%$) for residential hardwired lighting to 100% ($\pm 1\%$) for the duct testing requirement for new nonresidential buildings. Qualitatively, the study yielded lessons on the research process; for example, building permit data were often found to be incomplete, and compliance criteria were often partially – but not fully – met, raising important questions about the appropriateness of awarding “partial credit,” and if so, the appropriate level.

The authors conclude that noncompliance rates in California are idiosyncratic and highly measure-dependent. The diversity of processes and procedures employed at California building departments, a lack of training among counter permit technicians, and the range of levels of requirements in the codes themselves all contribute to the variation of observed noncompliance rates.