ENERGY STAR® Homes Program: The Massachusetts Program Design and Market Transformation Plan 2003-2007

August 1, 2002

Prepared by
The Joint Management Committee

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THE MASSACHUSETTS ENERGY STAR® Homes Program

2002 PROGRESS REPORT

Submitted to:

The Massachusetts ENERGY STAR Homes Program

Joint Management Committee

Submitted by:

Dorothy Conant, Consultant

Final Report

December 2002

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1 Introduction

The annual Massachusetts ENERGY STAR® Homes Program 2002 progress report is a concise summary of program activities, program performance, ongoing and recently completed market research and impact evaluation efforts, and metric achievement status, as well as a discussion of remaining challenges. The report includes a summary of normal 2002 program activities such as workshops, home shows, and builder and consumer marketing efforts. The idea is to give readers an overall sense of everything that is involved in implementing the program.

Program performance information includes historical as well as current information to show the growth of the program over time.

2 2002 Metrics

Four performance metrics were established for the 2002 Massachusetts ENERGY STAR Homes program. Each metric has three achievement levels: threshold, design and exemplary. The higher the achievement level reached, the higher the incentive the utilities will earn: no incentive is earned unless the threshold level is achieved. The status of achievement for each metric is summarized in Table 1. As of the end of November, the utilities had achieved the threshold level of achievement for Metric 1, were meeting the design level of achievement for Metric 2, have achieved the design level of achievement for Metric 3 and have achieved the exemplary level of achievement for Metric 4.

Table 1: Annual Performance Metrics and Status

Metric 1: Develop an updated program design and supporting program plan document.
Threshold Level: By August 1, 2002, develop an updated program design and market transformation plan document for the ENERGY STAR Homes Program in Massachusetts to guide program refinements and implementation for the period 2003 - 2005. The updated design/plan document will consider current market information and program experiences, and will include an updated program theory, planned program refinements, and a timeline and implementation strategy for those refinements
Status: Completed. Updated theory was completed in May and a plan for 2003-2005 in August.
Design Level: By December 31, 2002, modify program documents, systems, and marketing materials as needed to implement key attributes of the "next generation" of the ENERGY STAR Homes Program in Massachusetts during the first quarter of 2003.
Status: Marketing materials for 2003 have been modified to reflect the proposed rebate structure.
Exemplary Level: By December 31, 2002, develop a scope or scopes of work, complete a competitive solicitation process or processes, and sign contract(s) with one or more service providers covering program implementation for the period 2003-2005. (This can be in the form of renewable one-year contracts that can be extended through 2005.)
Status: Complete by December 31, 2002. Contract awarded to Conservation Services Group. Contract is in the form of a one year renewable contract to be extended through 2005. Contracts currently being reviewed by individual companies' Purchasing Departments and should be signed with Conservation Services Group on December 20, 2002 at the vendor kickoff meeting.[1]

[1] Negotiations continue with another firm that was offered part of the Builder Interface portion of the program.

Metric 2: Increase the number of ENERGY STAR products installed in ENERGY STAR Homes.
Threshold Level: 12 product points (average) per completed ENERGY STAR Home. This metric is based on a "point value system" for products installed per home as follows: 1 point for each ENERGY STAR CFL or torchiere installed; 2 points for each hard-wired ENERGY STAR fixture installed; 3 points for each major ENERGY STAR appliance (CW, DW, Refrig.); 4 points for ENERGY STAR central HVAC and ENERGY STAR windows (whole house).
Status: Currently Exceeding. As of the end of November, the average point score was 19.63.
Design Level: 14 product points (average) per completed ENERGY STAR Home.
Status: Currently Exceeding. As of the end of November, the average point score was 19.63.
Exemplary Level: 16 product points (average) per completed ENERGY STAR Home.
Status: Currently Exceeding. As of the end of November, the average point score was 19.63.

Metric 3: Achieve consensus on data collection, analysis activities, and reporting recommendations from the program MPER plan and implement.
Threshold Level: By June 30, 2002, review evaluation and data collection activities that are recommended in the New Construction MPER plan and reach agreement on activities to be completed and develop a scope of work covering implementation of all data collection, analysis, and reporting activities that will be completed in 2002 and that are currently contemplated for 2003 and 2004
Status: Completed. A scope of work document was completed in May
Design Level: By December 31, 2002, complete a competitive solicitation process or processes, and sign contract(s) or issue purchase orders with one or more consultants to implement the consensus scope of work (see ES HOMES 3 Threshold).
Status: Completed. An RFP was issued in May and Nexus Market Research, Inc. was selected to implement the consensus scope of work. The RFP covered the following activities: ✓ Market Assessment and Market Evaluation (2002, 2003, 2004) ✓ Process Evaluation (2002-2003) ✓ Review of Penetration Curves (2002, 2003, 2004) ✓ Incremental Cost (2002) ✓ Evaluation of HERS Pilot (2002-2003) ✓ HERS rating of 100 non-ENERGY STAR homes (2002-2003)
Exemplary Level: In addition to the above, by December 31, 2002, complete all 2002 data collection and analysis activities in the consensus scope of work and complete a residential new construction market progress report (MPR).
Status: The following activities have been completed. ✓ Focus groups with builders, HVAC contractors and insulation contractors were held in August and reports on the focus group have been issued. ✓ Mystery shopping including 15 on-site visits and 25 calls to builders was completed and a report issued. ✓ In depth interviews with 30 builders, 20 HVAC contractors, 20 plumbing and heating contractors, 20 insulation contractors and 8 multi-family decision makers have been completed. ✓ The survey of 200 recent home buyers – 100 ENERGY STAR and 100 non ENERGY STAR - has been completed. ✓ Upgrade options, for use in estimating incremental costs, have been identified and sent to builders who have agreed to provide cost estimates of the upgrades. The following planned 2002 activities are projected to be completed by the end of the year: ✓ Complete the remaining two interviews with multi-family decision makers ✓ Issue home buyer survey report ✓ Issue reports on the results of the in depth interviews with builders, subcontractors and

Metric 3: Achieve consensus on data collection, analysis activities, and reporting recommendations from the program MPER plan and implement.
multi-family decision makers ✓ Issue report on results of Delphi process for estimating ENERGY STAR housing penetration rates ✓ Issue Incremental cost report ✓ Issue draft report covering all 2002 evaluation activities undertaken as part of the consensus scope of work **Progress Report:** The 2002 progress report will be issued before the end of the year.

Metric 4: Develop and implement a pilot effort in at least two Massachusetts communities designed to 1) increase residential new construction energy code compliance rates, 2) demonstrate the value of home energy ratings (HERS) as a code compliance vehicle to builders and community officials, and 3) expand the pool of energy rating providers.
Threshold Level: Research, develop and present a DRAFT pilot plan that would meet the stated goals to officials and selected builders from at least two Massachusetts communities.
Status: Completed. Plans were presented to Arlington and Northampton.
Design Level: Modify and finalize the pilot plan based on feedback from the presentations and distribute.
Status: Completed. The pilot program design was finalized in July. Arlington and Northampton agreed to participate in the pilot.
Exemplary Level: Implement the final pilot plan in at least two Massachusetts communities and rate at least 25 homes for code compliance purposes. The HERS ratings in the pilot will be provided by more than one HERS provider, and the rated homes in the pilot will be in developments or for builders who otherwise had not participated in the ENERGY STAR Homes program or received energy ratings in the past.
Status: Completed. The pilot program was implemented in September and will run through the end of the year. In addition to the HERS ratings performed, a targeted codes/HERS builder workshop was delivered in each of the two communities with the support of the local building officials' offices. A full report on the results of the pilot program will be prepared in January 2003 and presented to the JMC.

ESTAR Homes 2 Memo.txt

From: Livermore, John [John.Livermore@csgrp.com]
Sent: Tuesday, March 11, 2003 4:59 PM
To: Keith Freischlag (E-mail)
Subject: 2002 JMC Point Score Metric

Hi Keith,

As you requested, the final average points per unit for the 2002 JMC Point Score metric was 17.29. As the exemplary level of the metric was 16, the NUPS have confirmed that the JMC has exceeded "exemplary". Please let me know if you need any additional info.

Regards,
John Livermore
Program Manager
Energy Star Homes
(800) 628-8413

RE: EStar Homes 3 Metric - March 25, 2003 email from Keith F. to Scott A.

Good morning,

I just spoke with Dottie Conant to confirm the status of the ESTAR Home metric 3. Both Ralph Prahl and Jeff Pratt have agreed that the MPER does meet the exemplary level of this metric. Please call to discuss. Dottie also suggested that if you had any questions to call her, Bill Blake or either of these NUPS. Please call to discuss.

Thanks,
Keith

Joint Management Committee
2002 Energy Codes Pilot
Arlington/Northampton

FINAL REPORT
(draft)

February 14, 2003

Prepared by
John Livermore, Conservation Services Group
Alan Hezekiah, Conservation Services Group
Alan Silverstein, Center for Ecological Technology
Bill Lafley, Center for Ecological Technology

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Executive Summary

History

The Joint Management Committee (JMC) has a history of commitment to supporting energy code compliance in the State of Massachusetts. In the late 1990's the JMC committed funding to support and augment the Board of Buildings Regulations and Standard's (BBRS) study, "Impact Analysis of the Massachusetts 1998 Residential Energy Code Revisions", (Xenergy, 2001).[1] In 2001, the JMC supported the BBRS in their energy code education outreach efforts by co-funding a consumer brochure, and in 2002 the JMC launched an Energy Codes Pilot in the communities of Arlington and Northampton.

The JMC's Energy Codes Pilot developed out of a series of group discussions on how to best assist with increasing energy code compliance in the state. These discussions were substantially informed by two papers, "White Paper on Using Home Energy Ratings to Improve Energy Code Implementation" RESNET, November 2001, and "Energy Code Compliance in Massachusetts Using HERS, Richard Faesy and Jeff Pratt, December 2001.[2]

The operating theory underlying the discussions was four-fold:

1. Energy code compliance rates in Massachusetts have significant room for improvement, as documented in the BBRS study.
2. There are current barriers to effective energy code compliance that can be addressed through specific program interventions to achieve desired effects. Some of these barriers include: Many code officials focus primarily on health and safety issues and have limited time available to concentrate on energy code compliance; Many builders have misperceptions about building science concepts and about actual costs involved in upgrading energy performance; Consumers often have the perception that all new homes are energy efficient.
3. There are huge potential energy savings associated with raising energy code compliance rates.
4. When all builders comply with current energy codes, it will be easier for them to take the next logical step up to Energy Star Home standards.

In crafting the Energy Codes Pilot scope, the JMC had several discussions with head Plymouth building official, Paul Vecchi. Paul's input proved valuable and helped the JMC better understand how the inspection process works, and how we could potentially provide assistance to enhance energy code compliance rates. Paul stressed education and training and he stated that "education is everything". A key issue, however, is to gain the trust of the building official before imparting information.

In addition, individual JMC members visited several Building Departments in communities throughout Massachusetts to get a better sense of the building permitting and inspection process.

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[1] See on-line at www.state.ma.us/bbrs/Mass_Code_Evaluation_Final_Report.PDF
[2] See Appendix I.

Based on all of this information, the JMC crafted their Energy Code Pilot metric for program year 2002.

The Metric

Metric 4: Develop and implement a pilot effort in at least two Massachusetts communities designed to 1) increase residential new construction energy code compliance rates, 2) demonstrate the value of home energy ratings (HERS) as a code compliance vehicle to builders and community officials, and 3) expand the pool of energy rating providers.
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Status: Completed. The pilot program was implemented in July-September and ran through the end of the year. In addition to the 29 HERS ratings performed, a targeted Codes/HERS builder workshop was delivered in each of the two communities with the support of the local building officials' offices.