Home Energy Makeover Contests- Who Are the Winners and Losers in Motivating Existing Homeowners to Make "Whole House" Energy Saving Improvements

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Abstract

Local energy networks have a key role in introducing a market-based approach that will convince consumers to invest in completing energy-efficiency improvements in their homes. The Home Energy Makeover Contests, modelled after reality television shows, were conducted in over 20 cities and states in the United States of America. The contests are designed to demonstrate the process of a comprehensive "whole house" energy improvement work scope by choosing a typical home and homeowner to showcase energy efficiency programs, processes, and measures. The contests use a building-science based approach to select homes that best demonstrate the potential for energy savings. Each winning home received a makeover using energy-saving products and services donated by local suppliers. Then, all contest entrants (i.e., contest losers) and other community members were invited to tour the newly improved, winning home and to learn how to conduct their own energy makeover at their own expense using the local suppliers. In all cases, the winning home owners made a compelling case to the home visitors and media for the non-energy benefits that the improvements achieve in comfort, health, safety and more. This paper will reveal how the contests:

- Expanded consumer, community leader and media awareness of utility home energy efficiency programs.
- Demonstrated "real energy savings" and the benefits of building-science based assessment and testing, quality installation and a comprehensive whole house approach to home efficiency upgrades.
- Showcased the benefits of home energy efficiency as seen through the eyes of a homeowner.
- Generated qualified leads for trade allies participating in utility or community wide programs and jump-started consumer program participation.
- Provided a model for collaboration between the program sponsor, contractors and equipment manufacturers and distributors.

The home energy makeover contest uses the winning household to demonstrate the value of energy efficiency to influence their peer groups and the wider population about important factors in the value (both energy and non-energy benefits) that are derived from the purchase and adoption of energy efficiency measures being promoted by local, state, or federal authorities. This demonstration influences others in a similar demographic to pursue adoption of the energy upgrade process, by showing them that "people like me" are benefiting from and enjoying the rewards of a high performing home. Some programs included education on potential health benefits of asbestos mitigation, mold control, and improving indoor air quality.

Introduction

For many homeowners, media representatives, community leaders and market influencers, "seeing is believing." Utility companies, state-wide organizations and local communities recognized the value of Home Energy Makeover Contests as a means of shining a light on home energy efficiency by demonstrating how quality installed home

energy efficiency upgrades can lower energy bills, improve home comfort, create a healthier living environment and enhance home value.

This paper first details industry best practices for contest administration; including tips for developing an overall contest plan and timeline, product sponsor recruitment, building a dynamic informational website, maximizing customer participation, selecting the winning home, seamless installation management, capturing and documenting project results, conducting a high profile media open house and facilitating customer workshops that educate homeowners and strengthen trade ally relationships. This paper then presents results and key lessons learned from more than 20 contests supported with funds from local community sustainability programs, utility energy efficiency programs, and U.S. Recovery and Reinvestment Act funds between 2008 and 2012.

As detailed in a previous paper presented at ECEEE Summer Study (Thomas et al., 2009), building code enhancements are making new homes more energy efficient. However, a large percentage of the housing stock in the United States was built prior to modern energy efficiency standards, and some states still do not have a state-wide building code or any energy efficiency code. Existing homes built before modern energy efficiency standards present opportunity for significant savings if comprehensive energy improvement measures are installed. The contest is designed to demonstrate the value of professional diagnostics and installation, and is not a "do-it-yourself" program. For optimal savings, best performance, and safety, homeowners must be must be encouraged to take a comprehensive approach to home improvement rather than pursuing single measures that do not solve either energy or comfort issues in a comprehensive fashion using professional grade materials installed by a qualified workforce. Homeowners are encouraged through communication, education, and presentation of a viable market solution available to them through qualified independent contractors who are trained to identify and solve energy and comfort challenges.

Contest Experience

Utilities and energy organizations in the United States of America (US) demonstrated that a comprehensive "whole-house" approach can achieve energy savings of up to 50% or more in existing buildings by conducting Home Energy Makeover Contests. Contests were conducted in a wide variety of communities (see Figure 1).

- Alabama - Huntsville Wise Home Energy Makeover Contest
- California - Anaheim Public Utilities Home Makeover Contest, Energy Upgrade California in Los Angeles County Makeover Contest, and Sacramento Municipal Utility District (SMUD) Home Energy Makeover Sweepstakes
- Colorado - 5th , 6th and 7th Xcel Energy Home Makeover Contests, Delta-Montrose Electric Association (DMEA) Home Energy Makeover Contest
- Florida - Jacksonville Electric Authority (JEA) Home Energy Makeover Contest
- Georgia - Atlanta SHINE and DecaturWISE Home Energy Makeover Contest
- Louisiana - NOLAWise Home Energy Makeover Contest
- Pennsylvania - FirstEnergy Home Makeover Contest
- Oregon - Energy Trust of Oregon Home Energy Makeover Contest
- South Carolina - South Carolina Help My House Contest, CharlestonWISE Home Energy Makeover Contest
- Texas - 2010 and 2011 Texas Co-op Power Home Energy Makeover Contest
- Virginia - LEAP Home Energy Makeover Contest
- Washington, D.C. with Maryland and Virginia - National Capital Home Energy Makeover Contest.

Figure 1. Home Energy Makeover Contest Locations.

Home Energy Makeover Contest Concept

The innovative contest approach demonstrated that a viable market exists to encourage homeowners to make more comprehensive home energy improvement choices. The contests are typically sponsored by a local or state program, and a co-author of this paper, Ed Thomas, developed the concept and served as consultant to several Program Sponsors in the US, to deliver proof of concept. The contest is used to demonstrate to community homeowners how energy-saving, cost-effective home improvements that can reduce energy costs, improve comfort and indoor air quality and enhance the appearance and value of a home by showcasing the benefits of home energy efficiency through the eyes of a real, local homeowner. The contest takes a building science-based approach to the selection of a home that best demonstrates the potential for energy savings based on British thermal units/square meter (BTU/m^2) which is determined by converting the home's annual electric, natural gas, propane and/or fuel oil usage into the fuel-neutral equivalent in BTUs and then dividing this total by the total amount of conditioned space. This allows the home to be compared to others of equal size regardless of the fuel used. Other factors considered in selecting the winning home can be:

- home being in need of improvement or replacement of all/most major energy systems and appliances, but not in need of major non-energy-related structural improvements (usually a home 10-45 years old);
- typical nature of the home (usually 139 m^2 - 232 m^2 [1,500 – 2,500 ft^2]) and occupants (usually 2 – 4 people) to ensure that others will identify with the winning home being similar to theirs and the occupants being people like them;
- evidence that the homeowner might have had the financial resources to have made the home improvements on their own in a cost-effective manner if they had taken a comprehensive approach and financed the improvements with the projected energy savings (i.e., not a low-income client that might otherwise qualify for government-funded weatherization assistance);
- engaging personality and compelling personal story with a willingness to open their house and lifestyle to the media and general public;
- willingness to allow contest sponsors to monitor and publish home's before-and-after energy use with no abnormal energy use patterns such as an energy-intensive home business; and
- willingness to be responsible for tax consequences of accepting the prize.

The winning home receives a makeover using professionally installed energy-saving products and services donated by local suppliers. Then, all contest entrants (i.e., contest losers) and other community members are invited to tour the newly improved, winning home and learn how to conduct their own energy makeover at their own expense using the local suppliers. In all cases, the winning homeowners make a compelling case to the home visitors and

media for the non-energy benefits that the improvements achieve in comfort, health, safety and more. (See for example: Thomas and Bony, 2005; Thomas and Thomas, 2006; Keegan, 2006).

Contest Methodology

Most of the Contests followed a similar path for planning and administration within a predefined territory to enhance awareness among consumers in an innovative manner, and engage participating trade ally sponsors. To implement the contest, the Program Sponsors solicited promotional support from area businesses to present a contest in which the homeowner(s) with the greatest potential to demonstrate energy savings had the opportunity to be awarded a prize package of energy-related home improvements. The home improvements were often donated by manufacturers and distributors. Labor for installation was provided by local contractors participating in the sponsored program. In addition to the complete upgrade package, comprehensive home performance analyses without improvements are awarded as consolation prizes to runners-up. Copies of all the home performance analysis reports were made available to all consumers to review and compare with their own home, to help educate the marketplace.

The Contest Administration projects generally center on four primary tasks: Task 1: Contest Planning; Task 2: Co-sponsor Recruitment; Task 3: Contest Administration; and Task 4: Winning Home Documentation and Lessons Learned.

Task 1: Contest Planning (1-3 months)

Program administrators must first prepare an overall contest plan with detailed action items, target dates, and stakeholder responsibilities. The planning begins with a literature review of prior Home Energy Makeover Contests and examples of media coverage, descriptive press releases, program marketing materials, program rules, contestant qualification criteria, on-line customer sign-up process, customer interview questions, web site development, sample sponsor agreements, technology fact sheets/case studies and more. A stakeholder planning session should be conducted to reach consensus on stakeholder roles and responsibilities. At the meeting, the agenda should include discussion of:

- Assignment of deliverables and due dates for activity completion;
- Timing for contest entries;
- Criteria for winner selection and open house/workshop(s);
- Proposed project size (value should be comparable to a "typical" project in the community);
- Contest winner, finalist and consolation prize bundles to be awarded;
- Potential for local home show, media, and other promotional tie-ins;
- Integration of overall residential energy efficiency program messaging with Home Energy Makeover Contest messaging; and
- Development of a preliminary marketing/customer communication plan.

Task 2: Co-sponsor Recruitment (1-3 months)

This task includes drafting a co-sponsor prospectus to be used as a solicitation document to recruit equipment sponsors that will donate equipment or in-kind contributions that will enable installation of efficiency measures such as: space heating, ventilation, and cooling systems; water heating (tankless, storage, and/or solar thermal); insulation and air sealing (ceiling, wall, floor as required); energy efficient lighting; high performance windows; energy efficient appliances; water efficiency measures; and other energy, comfort, or safety measures that may be identified.

The prospectus is distributed to sponsor prospects with an invitation to attend a co-sponsor recruitment meeting and webinar(s) to kick-off the co-sponsor recruiting process. By inviting a wide range of potentially competing sponsors, the Program will create a sense of urgency that will drive them to quickly commit or risk being left out. The Program Administrator should negotiate and generate signed Co-Sponsor Agreements with each co-sponsor that clearly describes their commitments/responsibilities and articulates the Program Sponsor commitment to provide visibility to the co-sponsor through makeover contest promotional materials, media advisories, consumer communications, and program related events.

Task 3: Contest Administration and Winner Selection (2-3 months)

Development of a program dedicated website is imperative. The website must be dynamic and evolve throughout the duration of the contest. It should include but not be limited to the following: overall contest description and objectives; legal posting of "Official Contest Rules"; online customer contest registration with receipt confirmation; examples of program marketing materials; press releases and media coverage as applicable; fact sheets/case studies (once installation is complete), and sponsor and co-sponsor recognition.

The planning and implementation of a multi-faceted campaign that extends beyond website development should include methods to promote the contest as an integral part of the Program Sponsor's overall residential energy efficiency program marketing efforts. The Program Management Team should assume the lead responsibility for planning consumer-oriented marketing activities that may include the following elements: contest announcement via news release and outreach to major media markets; advertising via print and online; direct marketing through bill inserts and/or mailings distributed in collaboration with participating contest sponsors; contest-related stories placed in targeted print and electronic newsletters and blogs; printed contest flyer for distribution at events and targeted locations and via program trade allies and contest sponsors; contest promotion at home shows and events; video(s) on the winning homes for web posting and use by participating contractors; open houses/workshops to showcase winning home following the completed makeovers, and follow-up with contest entrants through an outreach campaign designed to leverage awareness of home performance and drive inquiries to participating contractors.

The winner selection process begins with scoring all contract entrants based on BTU/m^2 (assuming the ability to coordinate energy usage interface with area utilities) and/or other measure determined by the Program Management Team and rank applicants based on energy use intensity. A telephone customer survey is used to contact the top percentile of homeowners with high energy use to gather additional information that may exceptionally qualify or disqualify the home as a potential winner (e.g., special usage characteristics, in-home business, number of occupants) and determine homeowner availability based on the Project Management Team's installation schedule and review "Contest Rules" regarding accessibility to the media and installing contractors, potential tax liabilities, and post-installation usage monitoring. Based on the results of the telephone survey, the Program Sponsor sets a ranking order of the top candidate homes based on the combination of energy saving potential and homeowner characteristics. A quality assurance contractor or other designated program personnel conducts a comprehensive home assessment of each of the 5 to 20 semi-finalist candidates to determine how the homes are currently performing in order to recommend the home best suited to demonstrate deep energy savings and comprehensive measure integration. Ideally, this assessment is performed by a participating contractor in the program and consists of full diagnostic testing which may include but not be limited to air leakage testing with a blower door, combustion analysis, duct pressure testing, and visual inspection. A contest winner selection meeting is attended by key stakeholders for selection of the grand prize contest winner and to schedule prize package installation. It is recommended that the quality assurance contractor oversees the installation of targeted measures in the winning home to assure compliance with program requirements. A sample of contest entrant characteristics and snapshots of winning home information is presented in Table 1.

Task 4: Documentation of Winning Home and Lessons Learned (1-2 months)

The final task includes collaboration with stakeholders to assess the winning home's overall energy-saving performance, and develop a plan for post installation documentation and consumer education material development. Documentation may include the drafting and publication of fact sheets for each winning home covering each measure installed, describing the "before" condition, efficiency measure installed, actual or forecasted energy savings and homeowner quotes on how they perceive the measure has impacted their home (e.g., comfort, safety, energy savings). The development of an overall program case study should include documentation of lessons learned through contest planning and administration, and a project summary documenting all key program findings (e.g., summary of applicant demographics, summary of key findings from top 20 home analyses, impact of program marketing and media outreach).

The Program should conclude with the facilitation of a half-day workshop where all contest entrants and other invited participants may: learn more about the improvements made to the winning home; learn how to conduct a home energy makeover on their own home, and meet contest sponsors and local home efficiency improvement contractors. Workshop goals should be to leverage the knowledge gained from contest entries, finalist findings, and winning home achievements as well as insight gained from contest co-sponsor and utility interaction in order to maintain the momentum gained through the contest activity to encourage contest entrants and other to "do their own home energy makeover."

Table 1. Sample Contest Entrant and Winning Home Characteristics.

Contest Information	**Texas**	**Denver**	**Jacksonville**	**Oregon**	**Washington DC Region**	**South Carolina**	**Los Angeles**
Contest Host	Electric Cooperative	Private Utility	Public Utility	Statewide Agency	Television Station	Electric Cooperative	County Govt Agency
Total Contest Entrants	6,654	4,581	4,793	6,054	2,985	4,000	1,000
Average Home Built	1983	1973	1980	n/a*	1973	n/a*	n/a*
Average Home Size	198 m^2 (2,136 ft^2)	205 m^2 (2,202 ft^2)	178 m^2 (1,912 ft^2)	n/a*	211 m^2 (2,273 ft^2)	n/a*	n/a*
Winner Snapshots	**Donaldson Home**	**Michels Home**	**Fedeli Home**	**Cruikshanks Home**	**Colbert Home**	**Butler Home**	**Brown Home**
City and State	Waco, Texas	Grand Junction, Colorado	Jacksonville, Florida	Salem, Oregon	Ft Washington Maryland	St. Matthews, South Carolina	Los Angeles, California
Home Age	1986	1977	1973	1960	1973	1972	1951
Home Size	167 m^2 (1,800 ft^2)	201 m^2 (2,168 ft^2)	140 m^2 (1,500 ft^2)	136 m^2 (1,446 ft^2)	232 m^2 (2,500 ft^2)	120 m^2 (1,296 ft^2)	158 m^2 (1,700 ft^2)
Type of Energy Use Sponsor Sought to Reduce	Electricity only	Fuel neutral; electric and natural gas	Electricity only	Electric only	Fuel neutral; electric and natural gas	Electric only	Fuel neutral; electric and natural gas
*Reported Energy Use***	36,000 kWh electricity/yr	€1,495 ($1,953)/yr combined electric and natural gas bill	24,084 kWh electricity/yr	31,936 kWh electricity/yr	€2,258 ($2,950)/yr combined electric & natural gas bill	32,579 kWh electricity in 2009	7,943 kWh electricity; 445 therms natural gas; 13,042 kWh equivalent)
*Reported Energy Savings***	Electricity bill reduced from €319 ($417) to €201 ($263) in July 2009 to July 2010 (actual savings)	40% reduction in total usage (estimated)	25% reduction in total usage (estimated)	€280 ($366) savings (actual savings)	Budget bill reduced from €129 ($169) to €62 ($81) for electric and €84 ($110) to €8 ($10) for gas (actual)	10,983 kWh electricity in 2010 €129 ($168) /month (actual)	50% reduction in total usage (estimated)
Non-Energy Issue	Upstairs bedroom too uncomfortable to sleep	Wine glasses dusty; butter hard; sick grandchild	Ducts disconnected; pool pump inferior	Combustion safety and mold issues	Required allergy shots; bathroom not ventilated	Uncomfortable; blankets on windows year round	No attic/wall insulation, asbestos in crawlspace
Energy Opportunities	20 yr old and 9 yr old dual central heating and cooling systems	No insulation in cantilevers and knee walls; no CFLs	24% duct leaks & disconnects; 12% air leaks; R10 attic insulation	No wall insulation; woodstove needed for added heat	37 yr old air conditioner and 16 yr old furnace	5 times more air leaks than recommended; ovesized HVAC system	Had replaced windows with no energy savings
Improvements	New space heating an cooling systems; new water heater; insulate attic to R49	Significant air sealing; attic insulation; new heating system; window shade coverings; new water heater	New water heater tank; solar window film; significant air sealing; insulate attic to R40;	Added wall and attic insulation; New water heater tank; HVAC upgrade; removed 2 refrigerators	Upgraded HVAC system; drilled & filled wall insulation; added hospital grade air filration	Reduced HVAC from 2.5 to 2 ton; significant air sealing; increased return air flow	New solar-assisted HVAC system; drilled & filled wall insulation; moved water heater outdoors
Non-Energy Benefits Reported by Winners	Comfort; quieter HVAC unit and not under window	Reduced street noise; less window glare	No uneven temperatures between rooms; much less dust	No more mold cleanup; grand-kids don't wear sweaters	Fewer allergy shots; can close bathroom door to shower	Not sweating in summer and freezing in winter	Two new closets; no more milk man access door

* n/a = data not available from program sponsor.

* Program sponsors did not uniformly collect energy data; therefore the use and savings presentations vary, including kWh electricity, therms of natural gas, dollars saved on energy bills, and total usage reduction. Authors recommend a fuel-neutral approach that includes all energy usage. 1 therm of natural gas = 29.3 kWh, conversions are illustrative for the readers assistance, but when therms are cited, natural gas was burned directly in a household appliance. Natural gas is typically sold by the therm in the US utility market.

Best Practices and Lessons Learned

Best practices and lessons learned can be derived from many of the successful contests held throughout the US. Some best practices learned along the way include: leverage local broadcast media; document energy savings benchmarks (before and after improvements); leverage local print media; leverage web portals; capture homeowner print, photograph and video testimonials. Lessons learned were sometimes unexpected: contests created new alliances with channel partners; conversion of "leads" from entrants to completed projects may take longer than expected while homeowners gather resources; contests require a destination website to use as a "rallying point" for entries, co-sponsors, and to feature winners and winner updates; contests became a launching pad for on-bill financing legislation.

Best Practices

Leverage Local Broadcast Media

Three District of Columbia metropolitan area homeowners won home energy efficiency improvements valued at €7,657 ($10,000) or more as a part of the *National Capital Home Energy Makeover Contest*[1]. Assessments were performed and improvements installed by contracting companies accredited by the Building Performance Institute, Inc. (BPI), using certified professionals[2]. The winning homes were: Lockett home in Ashburn, Virginia; Root home in Rockville, Maryland; and Colbert home in Fort Washington, Maryland.

The three winners were among over 3,000 homeowners in the TV viewing area of a broadcasting company ABC7 WJLA. The television station produced the contest in cooperation with U.S. Department of Energy as well as local utilities and trade allies.

Case studies of the winning homes were featured in four 30-minute television featured that aired on Sunday mornings and were available online (WJLA, 2010). Television commercials were also produced to both announce the winning homes and revisit the homeowners after a few months to celebrate their energy savings.

Document Energy Savings Benchmarks

Energy Trust of Oregon Contest, 2009

In the Energy Trust of Oregon contest, conducted in 2009, actual annual energy use for one year prior to the makeover was documented (Energy Trust of Oregon, 2011), and projected energy savings were modelled for the winning homes based on a whole-house assessment performed by a certified BPI Building Analyst Professional using HomeCheck software (Table 2). The contest included homes in four utility territories, including two natural gas utilities and two electric utilities. Although each home had a comprehensive assessment, the utilities would only allow measures to be installed that were pertinent to reduction of usage for their particular service. Although gas customers would also have electricity in their homes, these winning customers were rural electric cooperative customers, which did not participate in the contest. Gas would be primarily for heating, water heating, and cooking activities. Winning customers in the electric utility territory lived in all-electric homes without gas service. Savings ranged from 12% to 53%.

Table 2. Energy Trust of Oregon Winning Homes, Modeled Savings Results, 2009 Contest.

Home Location	Heating fuel	Annual usage before contest	Reduction after contest	Estimated utility bill savings per year
Portland	NW Natural	765 therms (22,419 kWh equivalent), natural gas	53%	€350 ($457)
Bend	Cascade Natural Gas	1,208 therms (35,403 kWh equivalent), natural gas	40%	€418 ($547)
Salem	Portland General Electric	31,936 kWh electricity	12%	€280 ($366)
Medford	Pacific Power	38,265 kWh electricity	38%	€102 ($1,3438)

Texas Electric Co-op Magazine, 2010 Contest

In the Texas contest, actual documentation of each family's electricity costs was obtained for each winning home both before and one year after the contest (Table 3) and published on Texas Co-op Magazine's website (Moczygemba, 2011). In each case, there were significant savings. Assessments were performed by BPI certified Building Analysts, and improvements were made by co-sponsors and distributors.

[1] WJLA 30-minute feature broadcast of the Colbert winning home: http://www.egia.org/portals/28/Video_FtWash_WJLA_TVFinale.htm

[2] Building Performance Institute: http://www.bpi.org/

John and Cindy Randolph, members of Wood County Electric Cooperative, and their family saw a total cost reduction of €92 ($121) for the combined period of two months. Richard and Nancie Jimenez, members of Guadalupe Valley Electric Cooperative, and their family saved a total of €106 ($139)—even though August 2010 was exceptionally hot and dry. Jacque and Aubrey Stark, members of South Plains Electric Cooperative, saved €117 ($153). Heart of Texas Electric Cooperative members B.J. and Linda Donaldson saw their electric bills decrease by €233 ($306). The August magazine cover family—Brandon and Dawn Zuniga and their children, members of Grayson-Collin Electric Cooperative—(Myers, 2010) saw savings of €193 ($253), with temperatures relatively constant for the compared periods.

Table 3. Texas Electric Co-op Magazine Contest, Actual Energy Savings.

Winning Home	Electric Co-operative	July 2009	August 2009	July 2010	August 2010	Combined Savings for 2-month period
Randolph Family	Wood County	€264 ($345)	€192 ($251)	€208 ($272)	€155 ($203)	€92 ($121)
Jiminez Family	Guadalupe Valley	€218 ($285)	€198 ($259)	€124 ($162)	€186 ($243)	€106 ($139)
Stark Family	South Plains	€234 ($306)	€224 ($292)	€152 ($199)	€188 ($246)	€117 ($153)
Donaldson Family	Heart of Texas	€319 ($417)	€305 ($398)	€201 ($263)	€188 ($246)	€233 ($306)
Zuniga Family	Grayson-Collin	€368 ($481)	€294 ($384)	€245 ($320)	€224 ($292)	€193($253)

Leverage Print Magazine and Web Portal

The Texas Co-op Power Home Energy Makeover contest drew nearly 13,000 entries in 2010 from electric cooperative members across the state who wanted a chance to win up to €7,657 ($10,000) in home energy-efficiency improvements. The five winners and their respective homes represented a cross section of co-op members who were aware of the relationship between energy efficiency and their electric bills. The Texas Co-op Magazine dedicated a cover story that directed people to magazine's web portal for more details case studies and video summaries (Myers, 2010). Follow-up feature articles in the magazine and online detailed the savings in the first few months after the contest (Moczygemba, 2011).

Create Homeowner Video Testimonials

For the Energy Upgrade California Los Angeles County sponsored contest, seven Los Angeles County, California families won energy efficiency improvements, and the grand prize winner also won a photovoltaic solar power installation. The Winners of the Home Energy Makeover Contest were video taped in their homes to share their experiences[3], and the video testimonials posted on the websites (Los Angeles County, 2011) were used to encourage other community homeowners to share their experience, and join in upgrading their homes to be more energy efficient—some as much as 80% more efficient![4] All homes received comprehensive assessments and improvements were provided by participating Energy Upgrade California contractors using BPI certified staff.

Lessons Learned

Capture Home Show Leads

The program administrators for the Makeover Contests produced in Oregon coincided the contest entry period with local home improvement shows so attendees could enter online from laptops on the show floor. This proved to be an effective way to capture the contact information of contest entrants who "opted in" to receive follow-up from participating installers of home energy savings improvements (Energy Trust of Oregon, 2011).

Create New Alliances with Channel Partners

The opportunity to create new partnerships and channel marketing opportunities with utilities, financing partners, and local government along with a promotional campaign platform to offset marketing communication costs through grants and in-kind donations was cited as a primary benefit of the contest by the program administrator of the Virginia state-wide LEAP (Local Energy Alliance Program) that has produced multiple contests in regions of the state (Adams, 2013).

Convert Contest Entrants to Buyers

In an analysis of the participants from LEAP Makeover Contests in 2010 and 2011 (Adams, 2013), they found that over a 24-month period approximately 12% of the contest entrants converted to customers who went on to hire a participating program contractor and complete their own energy upgrade project.

[3] Learn more about each winner's upgrade at www.lacountymakeovercontest.org.
[4] EUC case studies at http://www.lacountymakeovercontest.org/county/los_angeles/index.html.

In 2009, Energy Trust of Oregon produced a Home Energy Makeover Contest and provided four winning homes with comprehensive energy-efficiency upgrades. Out of 6,054 entrants, twenty semi-finalists were selected based on highest usage per square meter (m^2) (square feet [ft^2]) of their home. Of those twenty semi-finalists, four winning homes were selected to receive comprehensive retrofits based on which homes would best demonstrate the value of the Home Performance with ENERGY STAR® program. Evaluators did not disaggregate the usage in the post-retrofit analysis, but base load, heating, and cooling measures were included, resulting in an aggregate reduction of electricity and natural gas usage. One year after the close of the contest, out of the 6,054 Home Energy Makeover Contest entrants (Energy Trust of Oregon, 2011):

- Twenty percent (1,246 unique homeowners) had participated in Energy Trust programs, resulting in energy savings of 612,570 kWh of electricity and 39,830 therms (1,167,302 kWh equivalent)[5] of natural gas.
  - Sixteen percent of entrants (950 homeowners) had installed 1,571 measures including products, weatherization, energy efficient heating systems and water heaters, and solar
  - About 7% of entrants (453 homeowners) scheduled and received a Home Energy Review
  - 51 entrants received Home Performance with ENERGY STAR® assessments
  - 25 entrants completed Home Performance with ENERGY STAR® projects
- Sixty-one percent (3,673) of entrants had never participated in Energy Trust programs prior to the contest

Create A Rallying Point to Make Program Website a Destination

In the Oregon contest, strong media coverage of the contest specifically and the overarching program in general was achieved. (Energy Trust of Oregon, 2011). In total, the program received 65 television stories, 3 radio interviews, and 23 newspaper articles, resulting in publicity value of over €233,538 ($305,000) and reaching an audience of over 1.5 million, as well as establishing a strong media and community presence in these outlying communities. In addition, the Oregon Home Energy Makeover site received more than 21,000 visits, generating nearly 80,000 page views of the contest results, story narrative and video content created to inspire homeowner action.

A compilation of video coverage from several contests that shows the breadth and diversity of promotional support that contests have garnered is available for viewing online at a website hosted by the Electric & Gas Industries Association that produced many of the contests with one of this paper's co-authors, Ed Thomas (EGIA, 2012).

Launch Policy Initiative for On-Bill Financing

A Makeover Contest produced state-wide in South Carolina proved to be the impetus for a policy initiative that created an on-bill financing pilot program. Over 4,000 residents across the state participated in the Help My House contest from the Electric Cooperatives of South Carolina in 2010. To help reach as many South Carolinians as possible, one television station in each of the state's seven broadcast markets provided coverage of the home makeover in their area. One of the seven winners, Linda Butler, cut her monthly power bill by an average of €144 ($188) through energy-efficiency improvements and all seven Help My House winners have saved a total of 33,016 kilowatt-hours of electricity and €3,290 ($4,296.29) (Phillips, 2010).

Using the energy saving improvement work scopes of the contest winning homes as a guide, South Carolina's electric co-ops developed a plan to loan approximately €574.2 ($750) million to co-op members with a goal of upgrading 225,000 homes over 10 years. That plan calls for participating co-ops to use a repayment formula where two-thirds of the savings on each monthly bill would be applied to the loan, with the co-op member keeping the remaining third. To qualify, homes would undergo an energy audit to ensure that the loan can be paid back in a reasonable time, said Mike Couick, CEO of The Electric Cooperatives of South Carolina. Utility engineers calculated that improving the efficiency of 225,000 homes could reduce energy use by 5.6 million megawatt-hours of electricity over the next 10 years, cutting the state's carbon dioxide emissions by 6.7 million metric tons in the process. (Phillips, 2010).

To test the concept in 2011, South Carolina's electric cooperatives piloted the Help My House loan program, a small-scale research effort designed to test the effectiveness and consumer acceptance of a new model for residential energy. The 125 participating households were projected to save an average of more than €306 ($400) per year (after loan payments) by reducing their electricity use an average of 35 percent. The pilot was launched in 2011 by the Central Electric Power Cooperative, the Electric Cooperatives of South Carolina, and eight South Carolina co-ops, with technical and policy support from Environmental and Energy Study Institute. The comprehensive energy retrofit approach is projected to yield an average energy savings of more than 11,000 kWh of electricity/year per home. Though the average loan was for €5,513 ($7,200) over a 10-year term, the net financial benefits are expected

[5] Program participation and savings numbers are from the beginning of contest through one year after entry closed (March 27, 2009—May 5, 2010) and exclude instant savings measures, energy saver kits, testing and coupon measures.

to be immediate, particularly during energy-intensive summer and winter months. The 35 percent projected energy savings from this meter-based on-bill financing pilot is substantially higher than the savings achieved by many traditional utility rebate-based residential retrofit programs. Further, 96 percent of interviewed participants said that they were satisfied with the program and found their homes to be more comfortable (Henderson, 2011).

Qualified Workforce

Most of the programs utilized the home energy makeover contest to drive consumer engagement in an incentive, rebate, or loan program to drive energy efficiency improvements. The majority required employees of the participating contractors to have engaged in some type of advanced, building-science based training and certification. Typically this was BPI Building Analyst to perform the initial test-in diagnostics and assessment of the home. Some, such as the NOLAWise and National Capital programs required the participating contractor companies to be accredited by BPI. Requiring professional certification ensures that workers who make improvements on the home have been tested for both knowledge and demonstrated skills, and are competent to perform certain tasks. Accreditation ensures that the company is committed to training all of its workers for their appropriate tasks, will properly educate homeowners to the energy efficiency benefits of a comprehensive house-as-a-system approach, and will also verify certain safety measures to ensure that both workers during the project and householders after the project will be safe. BPI Accredited Companies also agree to third-party quality assurance inspections.

Home Energy Makeover Workshops

As an alternative to conducting a Home Energy Makeover Contests, several organizations have produced Home Energy Makeover Workshops and Expos. Workshops are designed for programs with smaller budgets to provide program education and create consumer awareness of local programs. The events are designed to attract 50-250 area residents as well as trade allies who display energy-related products/services. Admission tickets are available for purchase at the door or in advance from select non-profit community groups. The modest admission price includes refreshments and door prize drawings, and assures that those who attend are motivated to learn how home energy-saving improvements can pay for themselves.

Implementation in Two American States

Colorado

The Home Energy Makeover Workshop & Expo, Fort Lewis College, Durango, Colorado (Thomas and Schwantes, 2008), was co-sponsored by two local electric utilities and their wholesale power provider. This workshop and product exposition was designed for consumers interested in energy/water efficiency, smart meters, demand response, and renewable energy. The workshop agenda was designed to showcase the utilities' entire residential customer program portfolio and the products and services of participating trade allies with 15-30 minute presentation topics which included: weatherization/insulation, green home remodeling, water heating, space heating/cooling, solar energy, windows, lighting, low-income energy assistance, and water conservation techniques.

Wyoming

The Home Energy Makeover Workshop & Expo, Laramie County Community College, Cheyenne, Wyoming (Thomas and Adolf, 2008) was hosted by the local Home Performance with ENERGY STAR® sponsor in response to consumer concerns over how to manage rising energy prices and also to stimulate consumer interest in the Home Performance with ENERGY STAR program and the Wyoming GEOSmart loan program for energy efficiency improvements. This program sought to educate the public on the elements and benefits of a home energy audit and whole-house improvements by showcasing qualified participating contractors and trade allies with 15-30 minute presentation topics which included: low-cost/no-cost weatherization tips, insulation, thermal water heating, duct sealing, high-efficiency windows, space heating, and residential solar and wind energy. Local utilities also participated to showcase on-line energy audits, and local energy efficiency equipment rebate programs.

Workshop Methods

The Workshops followed a similar path for planning and administration within a predefined territory to enhance awareness among consumers in an innovative manner, and immediately engage participating trade ally sponsors. Goals of the half-day to one-day workshop are to allow participants to learn whole-house energy efficiency improvements; to learn how to conduct a "home energy makeover" on their own home; and to meet sponsors and local home efficiency improvement contractors.

The Workshop generally centers on four primary tasks: Task 1: Event Planning; Task 2: Agenda Development and Co-sponsor Recruitment; Task 3: Workshop Production; and Task 4: Follow-up Consumer Surveys.

Task 1: Agenda Development (1-2 months)

This task includes the preparation of an overall plan with detailed action items, target dates, and stakeholder responsibilities. The planning process should begin with a literature review of prior Home Energy Makeover Workshops and examples of media coverage, descriptive press releases, program marketing materials, program participation requirements, on-line attendee sign-up process, attendee pre-workshop interview questions, potential to recruit like-minded organizations such as Sierra Club to co-promote the event, web site development, sample sponsor agreements, speaker recruitment options, technology fact sheets/case studies and more.

As with the Contests, a stakeholder planning session should be facilitated to reach consensus on stakeholder roles and responsibilities. The agenda should include: Assignment of deliverables and specific due dates for activity completion; admission ticket pricing thresholds; potential for local home show, media, and other promotional tie-ins; integration of overall residential energy efficiency program messaging with Home Energy Makeover Workshop messaging; and development of a preliminary marketing/customer communication plan.

Task 2: Agenda Development and Co-sponsor Recruitment (1-2 months)

This task would include drafting a "conceptual" seminar agenda with co-sponsor prospectus to be used as a solicitation document to recruit sponsors that will present their equipment or services at the workshop and energy exposition, including: space heating, ventilation, and cooling systems; water heating (tankless, storage, and/or solar thermal); insulation and air sealing (ceiling, wall, floor as required); energy efficient lighting; high performance windows; energy efficient appliances; water efficiency measures; and other measures that may be identified.

The prospectus should be distributed to prospective sponsors with an invitation to attend a co-sponsor recruitment meeting and webinar to kick-off the co-sponsor recruiting process. By inviting a wide range of potentially competing sponsors, the Program will create a sense of urgency that will drive them to quickly commit or risk being left out. The Workshop Manager should negotiate and generate signed Co-Sponsor Agreements with each co-sponsor that clearly describes their commitments/responsibilities and articulates the Program Sponsor commitment to provide visibility to the co-sponsor through makeover contest promotional materials, media advisories, consumer communications, and program related events.

Task 3: Workshop Production (1-3 months)

Developing a program-dedicated website provides a central online location which helps to promote attendance, offer sponsor recognition, and project the program messaging beyond just the workshop attendees. The website must be dynamic and evolve throughout the duration of the event. It should include but not be limited to the following: evolving agenda; list of participating nonprofits as ticket sources; location and date information; examples of program marketing materials; press releases and media coverage as applicable; and sponsor and co-sponsor recognition.

Beyond the website, the planning and implementation of a multi-faceted marketing campaign should promote the Workshop as an integral part of the Program Sponsor's overall residential energy efficiency program marketing efforts. The Program Management Team should assume the lead responsibility for planning consumer-oriented marketing activities that may include the following elements: workshop announcement via news release and outreach to major media markets; advertising via print and online; direct marketing through bill inserts and/or mailings distributed in collaboration with participating sponsors; workshop-related stories placed in targeted print and electronic newsletters and blogs; printed workshop flyer for distribution at events and targeted locations and via program trade allies and sponsors; workshop promotion at home shows and events; and follow-up with workshop attendees through an outreach campaign designed to leverage awareness of home performance and drive inquiries to participating contractors.

Task 4: Follow-up Consumer Surveys (3-12 months)

To demonstrate the consumer response to the workshop as a motivating factor in their home energy improvement decision-making, surveys of workshop attendees should be conducted at three to six months and one year following the event. Survey information may include questions on lessons learned at the event, overall impression, actions considered, do-it-yourself measures implemented, and professional services selected with subsequent measures installed. The survey results should be incorporated into the development and publication of an overall program case study documenting lessons learned through contest planning and administration, and a project summary documenting all key program findings (e.g., summary of applicant demographics, summary of key findings from consumer surveys, impact of program marketing and media outreach).

Conclusion

Each program sought independently to generate public awareness and media interest to support market transformation toward a sustainable market where homeowners take a more comprehensive, energy efficient approach when hiring home improvement contractors. A common goal shared by the programs was to articulate to

community leaders, potential utility and program sponsors, and professional contractors in the local area both the public readiness for whole-house solutions and the viability of energy efficient retrofit as a viable business model.

Home Energy Makeover Contests demonstrate powerful ways to save energy and improve a home by capitalizing on homeowner and media interest in energy savings in ways that leverage the popularity of reality broadcast and cable television shows. In addition, the Contests offer exciting sponsorship opportunities to raise visibility for a range of energy-saving products and services. Each Contest resulted in a very satisfied homeowner providing positive public feedback through open houses, case study documentation, and extensive media coverage. The winning homeowners reported significant energy savings as well as improved health as a result of safety conditions identified by comprehensive assessments and addressed as part of whole-house improvements.

Home Energy Makeover Workshops educated local homeowners and showcased contractor and utility programs in a manner that captivated homeowners and engaged trade allies.

References

To aid readers in finding resources, authors have - to the extent possible - presented hyperlinks to source materials. However, the nature of the internet is that links move and change. If you are unable to find a resource, please contact the authors.

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- CharlestonWISE (Charleston, South Carolina) at http://www.charlestonwise.com/ and http://www.egia.org/DesktopDefault.aspx?tabid=1061
- AtlantaSHINE & DecaturWISE (Atlanta & Decatur, Georgia) at www.egia.org/contest/atlantadecatur
- Jacksonville (Jacksonville, Florida) at www.egia.org/contest/jacksonville and http://www.egia.org/DesktopDefault.aspx?Portal=38

Eastern States

- FirstEnergy (Pennsylvania statewide) at http://contest.energysavepa-home.com/wholehouse/ and www.egia.org/contest/firstenergy
- National Capital (Washington, DC metro area) at http://www.egia.org/DesktopDefault.aspx?TabID=866; http://www.egia.org/portals/28/Video_FtWash_WJLA_TVFinale.htm
- LEAP (Charlottesville, Virginia) at http://www.leap-va.org/success-stories/contest-winners
- Help My House (South Carolina statewide cooperatives) at http://www.egia.org/DesktopDefault.aspx?TabID=711

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- Anaheim Home Investment Program (Anaheim, California) at http://www.egia.com/homeownercenter/HMC.aspx
- Energy Upgrade California (Los Angeles County) at http://www.lacountymakeovercontest.org/county/los_angeles/index.html
- Home Performance (Sacramento Municipal Utility District) at http://hpp.smud.org/ and www.egia.org/contest/smud
- 6th Xcel Energy (Denver and Grand Junction, Colorado) at www.egia.org/xcelenergy

- 7th Xcel Energy (Denver & Grand Junction, Colorado) at www.egia.org/contest/xcel
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- 2nd Texas Coop Power Magazine (Texas statewide) at http://www.texascooppower.com/energy/efficiency/general/real-people-real-homes and www.egia.org/contest/texas2011