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**Subject** Focus on Energy Evaluation

**Targeted Home Performance with ENERGY STAR:  
Participant Characterization**

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contributed critical review and analysis

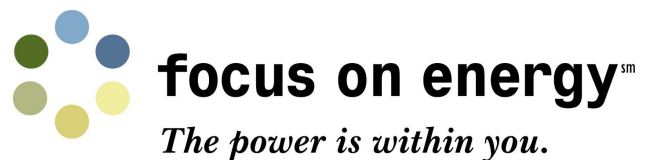
**Date** January 22, 2010

## Overview

Three tasks were planned for the Targeted Home Performance with ENERGY STAR (Targeted HPWES) program evaluation in this contract year: interim reporting, participant characterization, and participant and nonparticipant surveys. The nonparticipant surveys were completed and the report finalized in November<sup>1</sup>. The participant survey, planned for the first quarter of 2010, will speak with 200 2009 program participants to assess the program population given the change in income requirements and its potential effect on free-ridership rates (currently assumed to be zero percent).

This memorandum presents the results of the participant characterization task. The objective of this characterization is two-fold. First, it will provide the Wisconsin Energy Conservation Corporation (WECC) with a summary of participants' housing and household characteristics captured in the program database. Second, it will inform the participant survey design and identify information not captured in the database that should be included in the survey.

The source of this participant characterization was program data provided by WECC<sup>2</sup> that documented participants of completed jobs from January 1, 2009, to December 31, 2009. A total of 435 jobs were completed in this timeframe. The exception to this is the marketing data analysis, which includes all approved applications received during 2009 to provide the broadest look of how participants are being referred into the program. The information collected was used to characterize the program population and how they were served.



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<sup>1</sup> Steven Drake and Lark Lee, PA Consulting Group. *Targeted Home Performance with ENERGY STAR® Nonparticipant Survey Results*. November 20, 2009.

<sup>2</sup> WECC provided the "THPESEvaluation01052010.mdb" file received on 01/05/2010.

The results of our analysis of the following characteristics are presented in this memorandum:

- Average income and household occupant counts
- Building types, ages, ownership, and square footage
- Estimated and actual job costs per completed job
- Who paid contributions and the amounts paid
- How customers were referred to the program.

This document also identifies participant information that should be included in the participant survey. This data is detailed at the end of this memorandum.

## Key Findings

The program adjusted income eligibility requirements during 2009 to complement the state low income weatherization program.<sup>3</sup> First, the program increased the upper income limit on eligibility from 200 percent of the federal poverty guidelines to 250 percent. For example, this increase allowed a three-person family with an income ranging from \$36,620 to \$45,775 to be eligible for the program. Then in June 2009, the state low income weatherization program raised its income qualification to 60 percent of state median income. In response, Targeted HPWES raised its program income guidelines to 60 to 80 percent of the statewide median income. This further increased the income requirements of this program making it possible for a three-person family with an income ranging from \$37,856 to \$50,475 to participate.

The analysis indicates that the program is serving a lower/moderate income population as intended based on a review of the Wisconsin state median income and federal poverty level guidelines<sup>4</sup>.

- The program accepted participants who met the 150 percent to 250 percent poverty levels from November 2008 through March 2009. Under these guidelines, the program completed 389 jobs during 2009 with an average household size of 2.8 occupants and an average income of \$32,475.

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<sup>3</sup> The state Energy Assistance program kept the same income eligibility requirements until October 2009. This change caused a gap of service between the Weatherization program and Energy Assistance program from March 2009 through October 2009. During this time, there were a minimal number of individuals who fell below the current eligibility guidelines to receive assistance from Targeted HPWES but who also did not meet the income requirements to be able to receive assistance from the Weatherization program. Due to this gap, Targeted HPWES made exceptions for a few individuals and allowed them into the program when there was a no heat situation.

<sup>4</sup> Wisconsin state median income: <http://iheap.ncat.org/profiles/povertytables/FY2010/wismi.htm>;  
Federal poverty guidelines: <http://aspe.hhs.gov/poverty/09poverty.shtml>.

- From March 2009 to June 2009, the program guidelines changed to accept participants who met income eligibility from 200 percent to 250 percent poverty levels. Under these guidelines, the program completed 28 jobs with an average household size of three occupants and an average income of \$41,276.
- As of June 2009, the program's guidelines changed to 60 to 80 percent of state median income level. Under these guidelines, the program completed 18 jobs with an average household size of 2.3 occupants and an average income of \$37,740.

An analysis of all 2009 approved applications shows that the website is consistently the best source to refer applicants to the THPWES program, followed closely by being directly sent information on the program. The participant survey will further explore how customers learned of the website or how to contact the program.

A detailed analysis of participant characteristics by the three different income requirements, presented at the end of this memo, provides some insight into how the income eligibility may be affecting those served through the program. The number of completed jobs in the new income group is small and the findings should only be viewed qualitatively. Key findings from this analysis are as follows:

- The program is now serving households with an average annual income approximately ten percent higher than those served under the first income eligibility (150 to 250 percent of federal poverty level).
- While the majority of households served have remained single family and duplex (upper/lower) dwellings, there has been an increase in the number of mobile home's receiving assistance under the new income eligibility.
- The program did not serve any renters in the new income group in 2009. In the past, it has been difficult for the program to reach renters. This could suggest an increased difficulty under the new guidelines, which the program should continue to assess as more households in the 60 to 80 percent state median income group are served in 2010.
- There may be a decrease in the total job costs under the new income requirements. Jobs completed in 2009 under the new income requirements had significantly smaller total job costs than jobs completed under the 150 to 250 percent of federal poverty level income guidelines. Once more jobs are completed under the new guidelines in 2010, average total jobs costs should be analyzed again. If the decrease in total job costs continues, a full analysis of the measures installed for the new income group is warranted to see if whole house energy savings have changed.
- Customers in the new income group are less likely to receive outside assistance with the customer contribution. Customers in the 60 to 80 percent state median income range are receiving less help toward the contribution from beyond their own household resources. We Energy customers are getting less help now from all sources than previously and non-We Energy customers are no longer showing any help from any sources out side their own. Since the new income group is still of moderate income, the barrier of the customer contribution could increase if this group is less able to get any outside assistance with the customer contribution when it is needed.

## Participant Characterization

The program is primarily reaching homes with four or less occupants. Nearly 40 percent of participants have a household size of three to four occupants with the program serving households of one or two occupants equally.

**Table 1. Occupancy Frequency (N=435)**

Occupancy Groups	
1	24%
2	24%
3-4	37%
5+	14%

The program is primarily reaching single family homes and homeowners. Nearly 85 percent of participants live in single family homes and nearly all (96 percent) are homeowners (Table 1).

**Table 2. Building Type and Homeownership Status (N=435)**

Building Types	
Single family	83.9%
Duplex (upper/lower)	6.4%
Mobile home	5.5%
Condo	2.1%
Duplex (side-by-side)	1.6%
Multifamily (4-units)	0.5%
Homeownership Status	
Homeowners	97%
Renters	3%

Of the fourteen renters included in the dataset, six are living in single family homes. The eight other renters are evenly dispersed among the rest of the building types.

The database captures the year a home was built. According to the program data, the program is reaching fairly old housing stock. The average year the home was built was 1945 indicating that the program serves homes that are, on average, 65 years old (median age is 59 years). The year built ranged from 1800 to 2003.

**Table 3. Building Ages (N=348)**

Building Ages	
Before 1900	6%
1900–1930	27%
1931–1950	19%
1951–1970	25%
1971–1990	16%
1991–2003	6%

Note: Only 348 of the 435 completions had a building age recorded

The program is reaching homes that are larger than the average Wisconsin single-family home. Per an energy and housing survey conducted by the Energy Center of Wisconsin in 2000, the average square footage of a home is 1,600 square feet of living space.<sup>5</sup> A single family home served by Targeted HPWES is, on average, over 300 square feet larger (Table 2).

**Table 4. Square Footage by Building Type<sup>6</sup>**

Building Types	Average Square Feet	Square Footage Range
Single family (N=365)	1,883	616 to 4,640
Duplex (upper/lower) (N=28)	2,729	667 to 3,865
Mobile homes (N=24)	1,038	663 to 1,512

## Job Characteristics

WECC's budgets assume the average cost per job will be \$7,100 for Targeted HPWES. The actual job costs are close to this estimated budget. These costs are the total cost of the project without subtracting customer contributions that may have been made to the project.

- Estimated job costs averaged \$7,301 and ranged from \$1,135 to \$28,389.
- Actual job costs are very similar to the estimated costs where the average job cost was \$7,441 and ranged from \$1,685 to \$28,340.

All Targeted HPWES projects require at least a 10 percent customer contribution toward project costs. There are special case measures (e.g., repairs, doors, permits, extensive distribution system modifications) reviewed on a case-by-case basis that, once approved, require a 50 percent contribution for that measure cost. While the customer contribution can be paid on behalf of the customer from other sources, most customers are paying the contribution themselves.

- The majority (70 percent) of non We Energy customers paid at least part or all of the customer contribution for the Targeted HPWES program (Figure 1), while 52 percent of We Energy customers have contributed toward the Targeted HPWES program (Figure 2).
- We Energies contributed 38 percent of the total contribution amount required by the Targeted HPWES program (Figure 2) representing the second largest percentage of contributors in 2009. We Energies pays the contribution for gas saving measures for customers in Milwaukee, Racine, and Kenosha counties
- Almost twenty-eight percent of contributions came from an "other" category for non We Energy customers with only three percent for We Energy Customers. According to

<sup>5</sup> Scott Pigg and Monica Nevius. *Energy and Housing in Wisconsin: A Study of Single-Family Owner-Occupied Homes*. Energy Center of Wisconsin. November 2000.

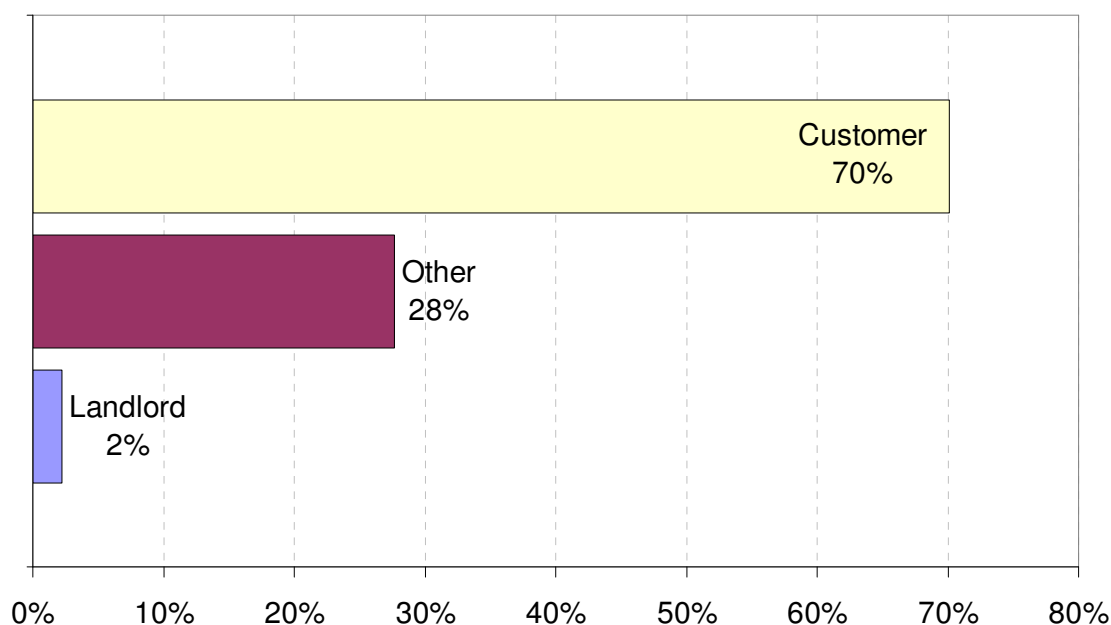
<sup>6</sup> Square footage of building types with less than 10 units are not included as part of the square footage analysis.

WECC staff, the other category is used to capture a loan from a parent/friend, the HOME program, Community Development Block Grant (CDBG) funds, a church, or a charity<sup>7</sup>.

There can be more than one contributor per completed job for Targeted HPWES. There were a total of 571 contributions made during 2009. Thirty-one percent of completed Targeted HPWES program jobs had two or more contributors, which accounts for the total number of contributions being higher than 435 completed.

For example, We Energies customers have to pay the contribution for any electric saving measures. Therefore in these cases, there would be two contributors—We Energies for gas measures and the customer for electric measures.

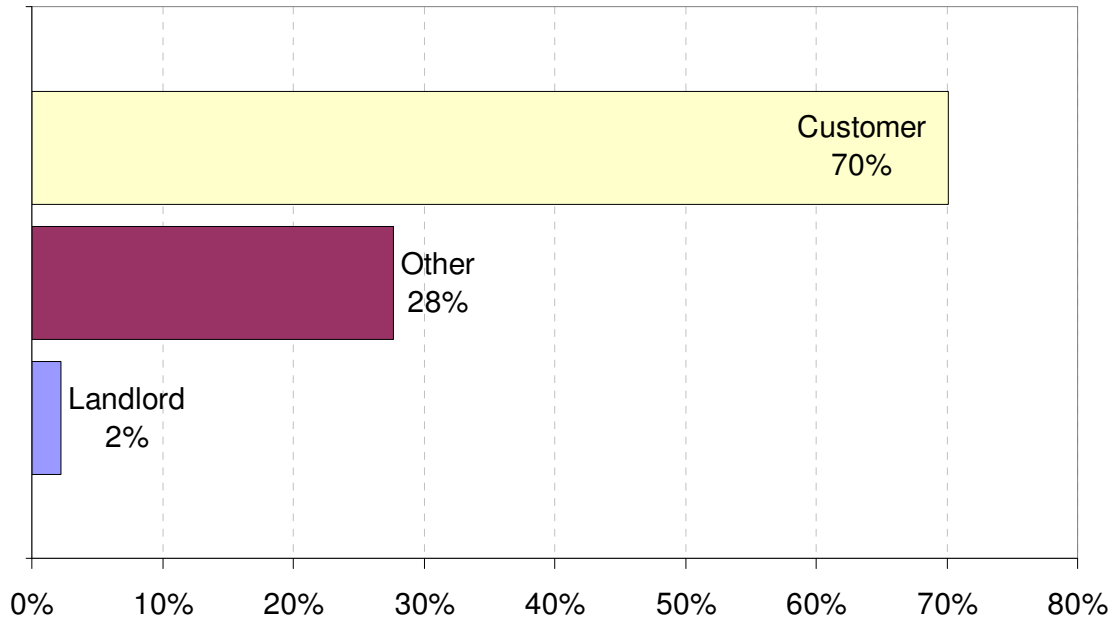
**Figure 1. Source of Contributions Paid (N=224) by Non-We Energy Customers**



Source: Targeted HPWES 2009 program participant database

<sup>7</sup> The other category also includes customers who qualify for the state low income program but were grandfathered into Targeted HPWES. In these cases, the customer contribution was waived. This one-year occurrence was implemented due to the numerous changes in income eligibility in the state low-income weatherization program in 2009.

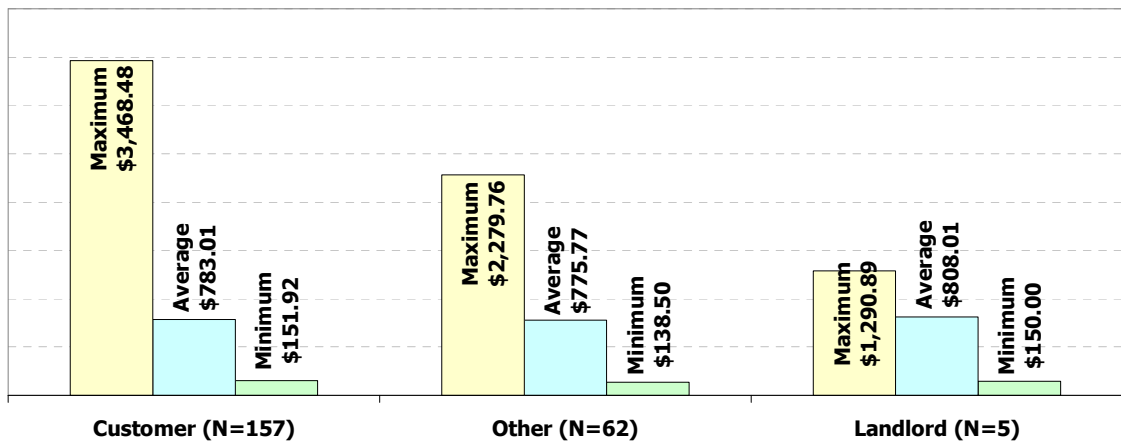
**Figure 2. Source of Contributions Paid (N=347) by We Energy Customers**



Source: Targeted HPWES 2009 program participant database

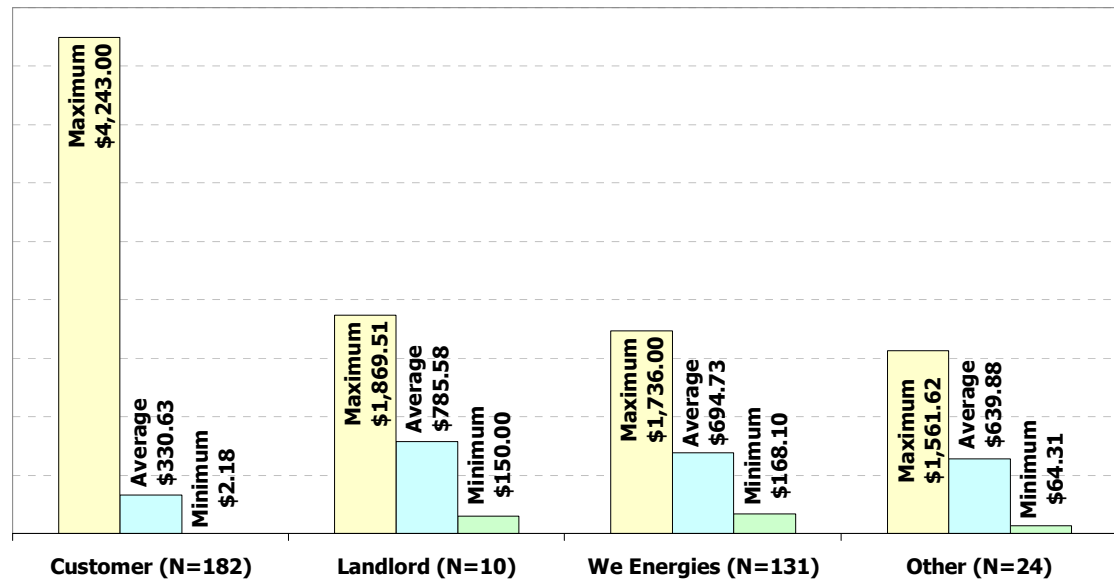
Figures 3 and 4 illustrate the minimum, maximum, and average amounts contributed by each group separated by We Energy Customers and non-We Energy Customers. Customers had the largest single contribution of any group, although their average payment was lower compared with the other contribution sources.

**Figure 3. Amount of Contributions Paid by Non-We Energy Customers**



Source: Targeted HPWES 2009 program participant database

Figure 4. Amount of Contributions Paid by We Energy Customers



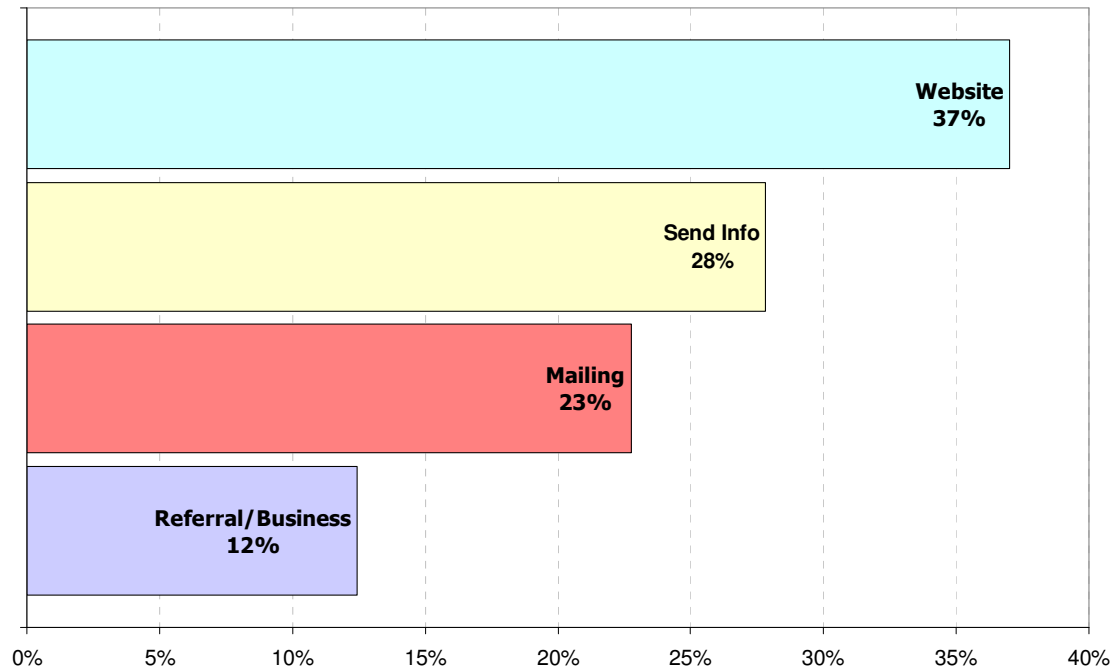
Source: Targeted HPWES 2009 program participant database

## Marketing

WECC uses a variety of marketing methods to refer participants into the program (Figure 5). WECC uses an assigned symbol for each marketing venue that is placed at the bottom of all applications. These symbols are used to identify where an application originated. According to this tracking method, the Focus on Energy website ([www.focusonenergy.com](http://www.focusonenergy.com)) was the most commonly used method by the applicants (48 percent). Additionally,

- The Focus call center helped Targeted HPWES generate 33 percent of completed jobs in 2009 from their referral efforts. The Focus call center also includes utility referrals.<sup>8</sup>
- Efforts of the program providers, energy assistance office, weatherization office, social service organization, or business resulted in 11 percent of the completed jobs in 2009. These other efforts are represented in the “Referral/Business” category.
- Eight percent were reached through the direct mailing marketing from the WHEAP over income list. The program conducted fewer direct mailings than in prior years due to the number of applications in progress.

<sup>8</sup> The data only tracks the application based on a tracking code so we currently have no way of determining which applicants were referred to the website from the Focus call center. The participant survey will probe more in-depth on the method of specific marketing efforts.

**Figure 5. Marketing Used to Refer Customers (N=196)**

Source: Targeted HPWES 2009 program participant database

An analysis of the source of referrals reported in approved 2009 applications under the different income eligibility requirements show that the website is the most important across all groups, followed by being sent information from the program.

**Table 5. Marketing by Income Eligibility Requirements during 2009 (N=196)**

Marketing	150%–250% PVL (N=105)	200%–250% PVL (N=53)	60%–80% Median (N=38)
Website	47%	47%	54%
Send info	31%	36%	33%
Referral/business	14%	11%	3%
Mailing	8%	6%	10%

## Income Eligibility Detailed Analysis

Table 6 compares characteristics of households served through the program under each of the three different income requirement groups served in 2010. This detailed analysis supports the key findings presented at the beginning of this memorandum.

**Table 6. Characteristics by Income Eligibility Requirements during 2009 (N=435)**

Characteristics	150%-250% PVL (N=389)	200%-250% PVL (N=28)	60%-80% Median (N=18)
<b>Income</b>			
Average	\$32,087	\$40,398	\$37,740
Minimum	\$15,684	\$15,628	\$23,697
Maximum	\$78,112	\$65,258	\$59,441
<b>Household occupant counts</b>			
Average	2.8	3	2.3
Minimum	1	1	1
Maximum	8	7	5
<b>Building types</b>			
Single family	82.6%	93.9%	83.3%
Duplex (side-by-side)	1.6%	2%	0%
Duplex (upper/lower)	6.8%	4.1%	5.6%
Condo	2.4%	0%	0%
Mobile home	6%	0%	11.1%
Multifamily (4-unit)	.5%	0%	0%
<b>Building ages</b>			
Not recorded	21%	14%	22%
Before 1900	6%	2%	0%
1900–1930	21%	24%	28%
1931–1950	15%	16%	22%
1951–1970	20%	24%	11%
1971–1990	13%	14%	11%
1991–2008	5%	4%	6%
<b>Ownership</b>			
Homeowner	96%	100%	100%
Renter	4%		
<b>Single family square footage</b>			
Average	1,832	1,715	1,387
Minimum	765	788	616
Maximum	3,948	3,612	2,288
<b>Estimated job costs</b>			
Average	\$7,328	\$7,076	\$7,377
Minimum	\$1,135	\$3,308	\$2,794
Maximum	\$28,389	\$14,502	\$12,453

<b>Actual job costs</b>			
Average	\$7,569	\$6,874	\$6,381
Minimum	\$1,685	\$2,843	\$2,794
Maximum	\$28,340	\$12,244	\$9,678
<b>Contributions by We Energy Customers (N=347)</b>			
Customers	52% (N=160)	52% (N=15)	88% (N=7)
We Energies	38% (N=117)	45% (N=13)	13% (N=1)
Other	7% (N=23)	3% (N=1)	
Landlord	3% (N=10)		
<b>Contributions by Non-We Energy Customers (N=224)</b>			
Customers	66% (N=119)	84% (N=27)	100% (N=11)
Other	32% (N=58)	13% (N=4)	
Landlord	2% (N=4)	3% (N=1)	

## Additional Participant Characterization Needs for Future Survey Efforts

WECC implements customer satisfaction surveys with all customers who completed jobs and conducts quality assurance inspections on a minimum of five percent of completed jobs. Targeted HPWES providers also collect participant and household information when they conduct pre-/post-program assessments.

Recently, there has been an increase in the number of energy efficiency programs serving moderate income households similar to Targeted HPWES. Other similar programs may increase as a result of stimulus funds.

The participant and nonparticipant surveys will establish a baseline for comparison over time on how this customer segment responds to energy efficiency services. PA will compare the survey's results to the program's earlier survey results to identify changes and similarities in both the eligible population and participants.

The participant surveys planned for the first quarter of 2010 will include similar questions, to the extent possible, from prior survey efforts to allow comparability of results. In addition, the surveys will gather additional information about participating household characteristics, which will include, but not be limited to:

- Vulnerable groups in households (children, elderly, disabled)
- Other age groups in household
- Monthly housing payments
- Decision maker of household
- Years they have lived in the home
- Other social service or energy efficiency programs they might have participated in during the past two years

- Income/employment history, such as whether their income is a product of recent employment change or if their income has remained stable over an established period of time
- Current energy efficiency awareness and behaviors.

We will also include a number of participation-related questions, including:

- Source of Targeted HPWES awareness
- Reasons for participation
- Barriers participants faced while completing the program and how were they overcome
- Customer satisfaction (which will also be compared to the results of the customer satisfaction survey sent directly to customers by the program)
- Changes in energy efficiency awareness and behavior resulting from program participation and those completing an Energy Education form
- Awareness of program prior to change in eligibility requirements (if participated after the income eligibility requirements changed)
- Awareness of and previous experience with similar programs (e.g., Weatherization Assistance Program, Targeted HPWES)
- Effects of other overlapping program offerings including We Energy and other pilot neighborhood projects such as Together We Save in Milwaukee
- Benefits of the program to customers including comfort and savings
- Opportunities for improvement
- Additional relevant needs not met by the program.

Originally, it was also planned for the survey effort to include questions to assess program attribution to determine if the program is now reaching households in an income range where some might have done home improvements without Targeted HPWES involvement. However, due to the multiple changes in income eligibility requirements in 2009 and the limited number of participants in the current 60 to 80 percent of state median income, program attribution should be looked at in a subsequent program year as opposed to this program year.