

## **Home Performance with ENERGY STAR Program – Nonparticipating Contractor Survey**

The purpose of the Nonparticipating Contractor Survey was to gather information from contractors who have not participated in the NYSERDA Home Performance with ENERGY STAR Program (HPwES). The survey was designed by GDS Associates to contribute to the Market Characterization and Assessment evaluation of the HPwES Program. The survey was managed by APPRISE Incorporated. Interviews were conducted by Braun Research.

### **Sample**

#### *Target Population*

The target population for the survey was contractors who have not participated in the HPwES Program. Active and inactive contractors were defined as those listed in the NYSERDA Monthly Home Performance Report for December 2007. Nonparticipating contractors are those that are active in home remodeling, heating and air conditioning, insulation, and the installation of windows and doors, but that are not on the CSG HPwES list. The survey respondent was the company contact in the data vendor's database. If no contact name was provided, interviewers ask to speak with someone at the company "who is familiar with the company's energy-related practices."

#### *Sample Frame*

The primary sample frame for the survey was a D&B file of contractors in NYS (excluding Nassau and Suffolk counties). The target SIC codes were 1521-0100 (single family home remodeling, additions, and repairs), 1521-0101 (general remodeling single family), 1711-0400 (heating and air conditioning contractors), 1711-0405 (warm air heating and air conditioning contractors), 1742-0203 (insulation, buildings), and 1751-0202 (window and door installation). The sample frame was purchased from Genesys Sampling and included 6,385 records.

#### *Sample Selection*

The sample frame was stratified into two contractor groups, general remodeling (1521-0100 & 1521-0101) and specialty contractors (1711-0400, 1711-0405, 1742-0203, and 1751-0202). Within those contractor groups, the contractors were stratified based on sales reported by D&B. Table 1 shows the contractor strata.

For both groups, the large contractors were those who represented 50% of total sales, the moderate contractors were those who represented the next 25% of sales, and the small contractors were those who represented the bottom quartile of sales. For general remodelers, large contractors had at least \$12.3 million in sales, moderate contractors had \$1.9 million to \$12.3, and small contractors had less than \$1.9 million. For specialty contractors, large contractors had at least \$760,000 in sales, moderate contractors had \$200,000 to \$760,000, and small contractors had less than \$200,000.

**Table 1a – Nonparticipating Contractors Sample Stratification  
General Remodelers**

<b>Stratum</b>	<b>Number of Contractors</b>	<b>Total Sales Volume (in millions)</b>	<b>Percent of Sales Volume</b>
Large	27	\$1,157	50%
Moderate	156	\$580	25%
Small	2,033	\$580	25%
<b>TOTAL</b>	<b>2,216</b>	<b>\$2,317</b>	<b>100%</b>

**Table 1b – Nonparticipating Contractors Sample Stratification  
Specialty Contractors**

<b>Stratum</b>	<b>Number of Contractors</b>	<b>Total Sales Volume (in millions)</b>	<b>Percent of Sales Volume</b>
Large	240	\$502	50%
Moderate	657	\$251	25%
Small	2,439	\$251	25%
<b>TOTAL</b>	<b>3,336</b>	<b>\$1,005</b>	<b>100%</b>

The survey budget allowed for 70 interviews. The final sample procedure allocated 35 interviews to each market sector. Within each sector, we allocated 15 interviews to the Large stratum, 10 interviews to the Moderate stratum, and 10 interviews to the Small stratum. Using that approach, the overall population statistics achieved the target confidence interval (+/- 10% with 90% confidence) and contractors with a greater market share were sampled at a higher rate. Table 2a furnishes information on the estimated population by stratum, the sample size by stratum, the confidence interval for each stratum, and the confidence interval for the overall sample.

**Table 2 – Nonparticipating Contractors Survey Sample Allocation**

<b>Stratum</b>	<b>Estimated Population (D&amp;B)</b>	<b>Targeted Number of Interviews</b>	<b>90% Confidence Interval</b>
General	2,216	35	+/- 14%
Specialty	3,336	35	+/- 14%
<b>TOTAL</b>	<b>5,552</b>	<b>70</b>	<b>+/- 10%35</b>

## Data Collection

### *Overview of Data Collection Procedures*

The Nonparticipating Contractor Survey was administered as a telephone interview with the NYSERDA project contact. Sampled contacts were mailed an advance letter from NYSERDA and one from APPRISE notifying them of the data collection effort and describing the study. Interviewers from Braun Research conducted the interviews using a computer-assisted telephone interview (CATI) survey instrument.

### *Survey Instrument*

The survey instrument was designed to collect information on key performance indicators identified for the HPwES the Program Theory and Logic Model. One objective of the survey instrument was to update the time series measurements of market indicators obtained from previous surveys. So, it was important to ensure that questions were consistent with the prior surveys. However, the survey also addressed some new issues of interest to NYSERDA program staff. Those questions, in particular, needed to be pretested to ensure that they collected the required information and used clear and concise language. Pretests found that the language for certain questions needed to be improved and several skip instructions required revision.

One instrument was used for both the nonparticipating and former participating contractors; the instrument was tested carefully to ensure that each type of builder was asked the appropriate set of questions. The grouping of positive and negative pre-coded responses in lengthy response lists also improved questionnaire administration.

### *Survey Administration*

Interviewers called project contacts between 9 am and 5 pm on weekdays. If they reached the contact's voice mail, they left a message on first contact. After the first contact, they left a message every other day. The study was in the field for six weeks. Attempts were made with each project contact at least once per day during the field period. Once the target number of interviews for a stratum was completed, interviewing was discontinued for that stratum. Survey administration averaged 27 minutes per completed interview. Table 3 shows the final disposition of the sample.

**Table 3 – Nonparticipating Contractor Survey Sample Disposition**

Disposition		Number	Percent
Complete	Complete	82	10%
	Partial	12	1%
Contacted	Refused	81	10%
	Not Completed	402	49%
Not Contacted	Quota Met	0	0%

Disposition		Number	Percent
Excluded	Duplicate	0	0%
	Business or contact no longer available	128	16%
	Information not available for business/contact		
	Not Eligible	113	14%
TOTAL		818	100%

Table 4 shows the number of eligible cases, the number of completed interviews, and the response rate by sample stratum. The overall survey response rate was 24%.

**Table 4a – Nonparticipating Contractor Survey Response Rate  
General Remodelers**

Stratum	Eligible Sample Size	Number of Interviews	Response Rate
Large	56	13	23%
Moderate	57	14	25%
Small	125	15	12%
TOTAL	228	42	18%

**Table 4b – Nonparticipating Contractor Survey Response Rate  
Specialty Contractors**

Stratum	Eligible Sample Size	Number of Interviews	Response Rate
Large	3	1	33%
Moderate	42	18	43%
Small	77	21	27%
TOTAL	122	40	33%

## Data Processing

### *Coding*

The survey included many “field-coded” questions. In these questions, the respondent was asked an open-ended question. The interviewer had the choice of coding the response as one (or more, for some

questions) of a number of pre-coded categories (coded from the open-ended responses for the prior surveys), or coding the response as “Other” and entering a text string to summarize the response. For each applicable question, staff reviewed each “Other” response and then selected one of the pre-coded responses or made the response eligible for development of a new code. After reviewing all questionnaires, text responses were grouped into categories. If a group represented at least three or more responses, a new code was created. If there were less than three responses, it was left as “Other.”

*Data Processing*

The survey data were checked for consistency with the CATI survey instrument. The survey data were combined with the sample frame data. A number of data file formats were developed, including SAS, SPSS, Stata, and Excel. All files were labeled with variable labels and value labels.

*Weights*

Since the survey was stratified and differential sampling rates were applied to each stratum, survey weights were developed and used for analysis of the data. Two weights were developed – a participant weight and a projects weight.

- Participant Weight – The same participant weight is computed for all completed interviews in the stratum. The formula for the participant weight (PW) is  $PW = \# \text{ of Eligible Builders} / \# \text{ of Interviews}$ . [See Table 5]
- Projects Weight – The projects weight is based on two factors – the stratum projects population and the number of respondents. The formula for the stratum projects population (SPP) is  $SPP = \text{the sum of } PW * \text{Projects Completed for all respondents in the stratum}$ . The formula for the projects weight (PtW) is  $PtW = SPP / \text{Number of respondents}$ . [See Table 6]

For the 2006 sample, a PPS sample based on the share of the market was implemented. Since a PPS sample is self-weighting with respect to the measure-of-size variable, the analysis for 2006 used unweighted data. The Projects Weight will yield comparable results to the 2006 procedures.

**Table 5a – Nonparticipating Contractors Survey Participant Weights  
General Remodelers**

<b>Stratum</b>	<b>Eligible Population</b>	<b>Number of Interviews</b>	<b>Participant Weight</b>
Large	91	13	7.00
Moderate	376	14	26.88
Small	1,509	15	100.57
TOTAL	1,976	42	N/A

**Table 5b – Nonparticipating Contractors Survey Participant Weights  
Specialty Contractors**

<b>Stratum</b>	<b>Eligible Population</b>	<b>Number of Interviews</b>	<b>Participant Weight</b>
Large	47	19	2.46
Moderate			
Small	790	21	37.64
TOTAL	838	40	N/A

**Table 6a – Nonparticipating Contractor Survey Projects Weights  
General Remodelers**

<b>Stratum</b>	<b>Stratum Project Total</b>	<b>Respondents</b>	<b>Weight</b>
Large	10,395	12	866.25
Moderate	21,907	13	1,685.17
Small	53,402	15	3,560.18
TOTAL	85,705	40	N/A

**Table 6b – Nonparticipating Contractor Survey Projects Weights  
Specialty Contractors**

<b>Stratum</b>	<b>Stratum Project Total</b>	<b>Respondents</b>	<b>Weight</b>
Large	21,193	18	1,177.38
Moderate			
Small	45,393	20	2,269.69
TOTAL	66,587	38	N/A