

National Grid

2007 Commercial and Industrial Programs
Free-ridership and Spillover Study

Final Executive Summary

June 23, 2008

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TABLE OF CONTENTS

| | | |
|-----------|--|------------|
| 1. | Executive Summary: National Grid | 1-1 |
| 1.1 | Study Objectives | 1-1 |
| 1.2 | Study Methodology | 1-1 |
| 1.3 | Total Participant Free-ridership Estimates | 1-2 |
| 1.4 | Participant “Like” Spillover Estimates | 1-7 |
| 1.5 | Nonparticipant Spillover Estimates | 1-11 |

1. EXECUTIVE SUMMARY: NATIONAL GRID

This Executive Summary summarizes the findings of the program year 2007 Commercial and Industrial Programs Free-ridership and Spillover Study for National Grid customers. The purpose of this study was to assess program free-ridership, participant spillover, and nonparticipant spillover for the following programs offered by National Grid:

- Energy Initiative
- Design 2000*plus*
- Small Business Services

The 2007 Free-ridership and Spillover Studies ran concurrently for National Grid, Cape Light Compact, United Illuminating, and Unitil.

1.1 STUDY OBJECTIVES

The primary objective of the program year 2007 Commercial and Industrial Programs Free-ridership and Spillover Study was to assist National Grid in quantifying the net impacts of their commercial and industrial energy efficiency programs by estimating the extent of:

- Program free-ridership
- Participant “like” spillover
- Nonparticipant “like” spillover

This executive summary provides the free-ridership, participant spillover and nonparticipant spillover estimates for 2007. First, a summary of the study methodology is provided.

1.2 STUDY METHODOLOGY

The methodology used for this year’s study follows the standardized methods developed in 2003 for a group of Massachusetts energy efficiency program administrators¹.

To accomplish the above objective, telephone surveys were conducted with samples of 2007 program participants in each of the programs and with design professionals and equipment vendors involved in these 2007 installations. The program participant sample consisted of unique electric utility *accounts*, not unique customer names. The same customer name, or business identity, can have multiple accounts in multiple locations, but program technical support and incentives are provided on behalf of an individual account. Thus, for the purposes of this study, a customer or participant is defined as a unique account.

The majority of these telephone interviews were completed with program participants between March 5 and May 9, 2008. All sampled participating customers were mailed a letter on National Grid letterhead in advance of the telephone call. This letter explained the purpose

¹ Pamela Rathbun, Carol Sabo, and Bryan Zent, *Standardization Methods for Free-ridership and Spillover Evaluation—Task 5 Final Report (Revised)*, prepared for National Grid, NSTAR Electric, Northeast Utilities, Unitil, and Cape Light Compact, June 16, 2003.

1. Executive Summary: National Grid...

of the call, informed customers that someone would be calling them in the next couple of weeks to ask them some questions about their experience with the programs, and thanked them for their cooperation in advance. This advance letter and repeated call attempts resulted in a high response rate of 76 percent, which increases the level of confidence in the survey results. The duration of interviews with program participants averaged ten minutes.

In addition to the customer surveys, surveys were conducted with:

- Design professionals and vendors identified by customers as being the most knowledgeable about the decisions to install the equipment through National Grid's Design 2000*plus* or Energy Initiative programs. These surveys were used for estimating free-ridership for those installations where the design professional/equipment vendor was more influential in the decision than the customer.
- Design professionals and equipment vendors who had recommended, sold and/or installed equipment through National Grid's Design 2000*plus* or Energy Initiative programs, as well as Unitil and United Illuminating's Medium and Large Commercial design professionals and vendors. These surveys were used for estimating the extent of nonparticipant "like" spillover for the Sponsor's programs.

The number of survey completions for some measure categories is low because the number of installations within these measure categories for program year 2007 was small. Thus, although a high percentage of the 2007 program participants completed surveys, some caution should be used when interpreting the results.

1.3 TOTAL PARTICIPANT FREE-RIDERSHIP ESTIMATES

A program's **free-ridership rate** is the percentage of program participants deemed to be free riders. A **free rider** refers to a customer who received an incentive through an energy efficiency program who would have installed the same or a smaller quantity of the same high efficiency measure on their own within one year if the program had not been offered. For free riders, the program is assumed to have had no influence or only a slight influence on their equipment purchase decision. Consequently, none or only some of the energy savings of equipment purchased by this group of customers should be credited to the energy efficiency program. Free riders account for costs, but not benefits, to the program, driving benefit-cost ratios down.

For programs that offer monetary incentives for multiple measure categories (e.g., motors, lighting, HVAC), it is important to estimate free-ridership by specific measure category. Category-specific estimates produce feedback on the program at the level at which it actually operates and allow for cost-effectiveness testing by measure category.

In addition, for commercial and industrial incentive programs, free-ridership has often been found to be highly variable among measure categories, making it essential to produce measure category-specific estimates. The ability to provide reliable estimates by measure category is dependent on the number of installations within that measure category—the fewer installations, the less reliable the estimation.

It is also important to measure the *extent* of free-ridership for each customer. Pure free riders (100%) would have installed exactly the same quantity and type of equipment within one year in the absence of the program. Partial free riders (1-99%) are those customers who would

1. Executive Summary: National Grid...

have installed some equipment within one year on their own, but a smaller quantity and/or a lesser efficiency. Thus, the program had some impact on their decision. Non-free riders (0%) are those who would not have installed any high efficiency qualifying equipment within one year in the absence of the program services. The total free-ridership estimates in this report include pure, partial, and non-free riders.

This year's approach to estimating free riders follows the approach outlined in the *Standardization Methods...* report, which consists of a sequential question technique to identify free riders. This sequential approach asks program participants about the actions they would have taken if the program had not been offered. This approach is considered an accurate method of estimating the actual level of free-ridership among program participants because it addresses the program's impact upon project timing, measure quantity, and efficiency levels while explicitly recognizing that the cost of energy-efficient equipment can be a barrier to installation in the absence of utility-sponsored energy efficiency programs. This method is also recommended because it walks survey respondents through their decision process with the objective of helping them recall the program's impact upon all aspects of project decision-making.

One issue with the method is how to handle responses of "don't know." The "don't know" responses to the initial free-ridership question are assigned a free-ridership value of zero percent. For these cases, we then check their responses to the consistency questions and their response to open-ended question and adjust the free-ridership rate as appropriate. Note that program total free-ridership (pure and partial) rates illustrated in the following tables are weighted by measure category kWh savings as well as the disproportionate probability of being sampled. When reviewing the measure category free-ridership rates it is important to consider the number of survey completions that the estimate is based upon.

Energy Initiative Participant Free-ridership Rates. Table 1-1 summarizes the total free-ridership results overall and by measure category for 2007 Energy Initiative installations. The overall Energy Initiative program free-ridership for the 2007 program year was 10.5 percent, which is higher than the 8.9 percent rate found for 2005 installations, and higher than the 6.7 percent rate found in 2004. The HVAC installations' free-ridership rates dropped significantly in 2007, which reflects changes in program requirements related to HVAC efficiency levels.

The rate was highest for VSD measures (33.1 percent), which changed significantly from previous years. A close review of the data shows that the relatively small population, and high savers with high free-ridership rates, drove the rate up for this measure category.

**Table 1-1
National Grid Energy Initiative Program Total Participant Free-ridership Rates
All 2007 Installations**

| Measure Description | Total Participant Free-ridership Rate | | | | | |
|---|---------------------------------------|--------------|-----------------------|-------------|-------------|--------------|
| | # Accounts (Survey/Pop) | 2007 | 2007 90% Error Margin | 2005 | 2004 | 2002 |
| Custom: Process, HVAC, Drivepower, Lighting, O&M | 50/118 | 7.4% | ±4.6% | 8.4% | 5.5% | 10.9% |
| Motors | 6/6 | 21.0% | ±0.0% | 32.4% | 15.2% | 9.1% |
| HVAC | 23/29 | 12.5% | ±5.5% | 40.9% | 0.3% | 43.8% |
| VSD | 12/18 | 33.1% | ±12.9% | 2.0% | 0.1% | 0.5% |
| Lighting: T8, Other Fluorescent, CFL, Controls, HID, LED Exit Signs | 93/397 | 10.2% | ±4.5% | 5.9% | 7.5% | 14.5% |
| Compressed Air | 15/19 | 5.7% | ±4.5% | 36.8% | 26.4% | 17.1% |
| Overall Energy Initiative Program | 178/558 | 10.5% | ±3.1% | 8.9% | 6.7% | 15.3% |

Overall survey and population participant counts do not equal the sum of measure category survey and population participant counts; the same participant may be represented in multiple measure categories.

Design 2000plus Participant Free-ridership Rates. Table 1-2 summarizes Design 2000plus free-ridership results overall and by measure category for 2007 installations. The overall Design 2000plus program free-ridership rate for 2007 was 19.0 percent, which is lower than the 21.7 percent rate found for 2005 installations and slightly higher than the 18.1 percent rate found for 2004 installations. As with the Energy Initiative program, HVAC measures' free-ridership rates dropped significantly between 2005 and 2007. VSD and compressed air measures had the highest free-ridership rates.

**Table 1-2
National Grid Design 2000plus Program Total Participant Free-ridership Rates
All 2007 Installations**

| Measure Description | Total Participant Free-ridership Rate | | | | | |
|---|---------------------------------------|--------------|--------------------------------|--------------|--------------|--------------|
| | # Accounts (Survey/Pop) | 2007 | 2007 90% Error Margin | 2005 | 2004 | 2002 |
| Custom: Process, HVAC, Drivepower, Lighting | 42/84 | 14.6% | ±6.3% | 10.1% | 2.4% | 16.6% |
| Motor: New | 37/88 | 28.8% | ±9.3% | 15.1% | 15.5% | 40.1% |
| Motor: Failed/Stock | 22/32 | 11.2% | ±6.2% | 23.5% | 21.8% | 23.2% |
| HVAC (Unitary): Packaged A/C and Water Source Heat Pump | 55/124 | 14.8% | ±5.9% | 56.4% | 5.3% | 40.0% |
| HVAC (Non-unitary): Programmable Thermostat, Energy Management System, Chiller, Control | 36/69 | 8.3% | ±5.2% | 49.1% | 64.0% | 39.5% |
| VSD | 10/16 | 58.7% | ±15.7% | 8.6% | 43.5% | 19.3% |
| Lighting: T8, Other Fluorescent, CFL, Controls, HID, LED Exit Signs | 51/123 | 27.9% | ±7.9% | 28.2% | 50.6% | 36.3% |
| Compressed Air | 55/113 | 33.8% | ±7.5% | 32.7% | 17.6% | 20.6% |
| Overall Design 2000plus Program | 241/516 | 19.0% | ±3.0% | 21.7% | 18.1% | 27.2% |

Overall survey and population participant counts do not equal the sum of measure category survey and population participant counts; the same participant may be represented in multiple measure categories.

Custom measures include six Comprehensive Program participants. The Comprehensive Program free-ridership rate was zero percent for 2007 installations.

Small Business Services Participant Free-ridership Rates. Table 1-3 summarizes the results overall and by measure category for 2007 Small Business Services installations. The total free-ridership rate for 2007 was 5.5 percent, which is slightly higher than past years.

**Table 1-3
National Grid Small Business Services Program Total Participant Free-ridership Rates
All 2007 Installations**

| Measure Description | Total Participant Free-ridership Rate | | | | | |
|--|---------------------------------------|-------------|-----------------------|-------------|-------------|-------------|
| | # Accounts (Survey/Pop) | 2007 | 2007 90% Error Margin | 2005 | 2004 | 2002 |
| Lighting: Fluorescent with ELIG/3'4'8' Lamp & EEMAG, Standard Ballast, Exit Sign, Compact Fluorescent, HID | 243/1,329 | 5.8% | ±2.2% | 2.3% | 1.0% | 1.0% |
| Non-lighting: Water Heater Wrap, Programmable Thermostat, Economizer | 64/155 | 3.6% | ±2.9% | 2.0% | 1.3% | 1.0% |
| Overall Small Business Services Program | 284/1,441 | 5.5% | ±2.0% | 2.2% | 1.0% | 1.0% |

Overall survey and population participant counts do not equal the sum of measure category survey and population participant counts; the same participant may be represented in multiple measure categories.

State-level Participant Free-ridership Rates. Table 1-4 shows Massachusetts has a total 2007 free-ridership rate of 12.7 percent, New Hampshire 21.1 percent, and Rhode Island 10.0 percent.

**Table 1-4
National Grid State-level Total Participant Free-ridership Rates
All 2007 Installations**

| Program | Total Participant Free-ridership Rates | | | | | | | | |
|-------------------------|--|---------------------------|------------------|---------------------|---------------------------|------------------|---------------------|---------------------------|------------------|
| | Massachusetts | | | New Hampshire | | | Rhode Island | | |
| | # Accounts Surveyed | 2007 Total Free-ridership | 90% Error Margin | # Accounts Surveyed | 2007 Total Free-ridership | 90% Error Margin | # Accounts Surveyed | 2007 Total Free-ridership | 90% Error Margin |
| Energy Initiative | 128 | 11.3% | ±3.8% | 8 | 24.2% | ±11.1% | 42 | 7.9% | ±5.9% |
| Design 2000plus | 154 | 18.6% | ±3.8% | 8 | 51.1% | ±15.2% | 79 | 18.1% | ±5.1% |
| Small Business Services | 127 | 6.9% | ±3.4% | 45 | 0.5% | ±0.8% | 112 | 4.3% | ±2.8% |
| ALL | 392 | 12.7% | ±2.4% | 60 | 21.1% | ±3.4% | 228 | 10.0% | ±2.8% |

Overall survey and population participant counts do not equal the sum of program survey and population participant counts; the same participant may be represented in multiple programs.

1.4 PARTICIPANT “LIKE” SPILLOVER ESTIMATES

Spillover refers to additional energy-efficient equipment installed by a customer due to program influences but without any financial or technical assistance from the program.

Participant “like” spillover refers to the situation where a customer installed equipment through the program in the past year and then installed additional equipment of the same type due to program influences. In contrast to free-ridership, spillover adds benefits to the program at no additional cost, increasing the program benefits and benefit-cost ratio.

Survey free-ridership questions were followed by questions designed to measure “like” spillover. These questions asked about recent purchases (since program participation in 2007) of any additional energy-efficient equipment of the same type as installed through the program that were made *without* any technical or financial assistance from the utility. A “like” spillover estimate was computed based on how much more of the same energy-efficient equipment the participant installed outside the program and did so because of their positive experience with the program.

One of the issues with attempting to quantify spillover savings is how to value the savings of measures installed outside the program since we are relying on customer self-reports of the quantity and efficiency of any measures installed. We used a conservative approach and reported only those measures installed outside the program that were of exactly the same type and efficiency as the ones installed through the program. Our conservative approach allowed customers to be more certain about whether the equipment they installed outside the

program was the same type as the program equipment. This, in turn, makes it possible for us to use the estimated program savings for that measure to calculate the customer's "like" spillover savings.

Note that the "like" spillover rates illustrated in the following tables are weighted by measure category kWh savings and the disproportionate probability of being sampled. When reviewing the measure category "like' spillover," it is important to consider the number of survey completions that the estimate is based upon. The number of survey completions for some measure categories is low because very few customers in the sample installed the measure. Thus, although a high percentage of the 2007 program participants completed surveys, some caution should be used when interpreting the results.

Energy Initiative Participant "Like" Spillover Rates. Table 1-5 presents the "like" spillover rates for year 2007 Energy Initiative participants, overall and by measure category. The estimate of "like" spillover savings attributable to the overall Energy Initiative program for the purchase of like equipment outside of the program is 3.3%, which is slightly higher than previous years' spillover rates.

**Table 1-5
National Grid Energy Initiative Program Participant "Like" Spillover Rates
All Year 2007 Installations**

| Measure Description | Total Participant "Like" Spillover Rate | | | | | |
|---|---|-------------|-----------------------|-------------|-------------|-------------|
| | # Accounts (Survey/Pop) | 2007 | 2007 90% Error Margin | 2005 | 2004 | 2002 |
| Custom: Process, HVAC, Drivepower, Lighting, O&M | 50/118 | 8.5% | ±4.9% | 1.9% | 0.7% | 1.4% |
| Motors | 6/6 | 13.9% | ±0.0% | 1.7% | 0.0% | 2.5% |
| HVAC | 23/29 | 5.2% | ±3.5% | 0.3% | 27.0% | 7.9% |
| VSD | 12/18 | 0.0% | ±0.0% | 0.2% | 16.2% | 12.0% |
| Lighting: T8, Other Fluorescent, CFL, Controls, HID, LED Exit Signs | 93/397 | 1.8% | ±2.0% | 1.4% | 0.4% | 2.1% |
| Compressed Air | 15/19 | 0.0% | ±0.0% | 0.0% | 0.0% | 0.0% |
| Overall Energy Initiative Program | 178/558 | 3.3% | ±1.8% | 1.4% | 2.7% | 2.7% |

Overall survey and population participant counts do not equal the sum of measure category survey and population participant counts; the same participant may be represented in multiple measure categories.

Design 2000plus Participant “Like” Spillover Rates. Table 1-6 presents the “like” spillover rates for year 2007 Design 2000plus installations overall and by measure category. The overall Design 2000plus program spillover rate for the 2007 program year was 5.9 percent, which is lower than 8.8 percent rate found for 2005 installations but higher than 2004 and 2002 rates.

**Table 1-6
National Grid Design 2000plus Program Participant “Like” Spillover Rates
All Year 2007 Installations**

| Measure Description | Total Participant “Like” Spillover Rate | | | | | |
|---|---|-------------|-----------------------|-------------|-------------|-------------|
| | # Accounts (Survey/Pop) | 2007 | 2007 90% Error Margin | 2005 | 2004 | 2002 |
| Custom: Process, HVAC, Drivepower, Lighting | 42/84 | 3.7% | ±3.4% | 11.3% | 1.8% | 1.0% |
| Motor: New | 37/88 | 9.2% | ±5.9% | 5.3% | 2.4% | 8.4% |
| Motor: Failed/Stock | 22/32 | 4.5% | ±4.0% | 10.4% | 3.4% | 21.4% |
| HVAC (Unitary): Packaged A/C and Water Source Heat Pump | 55/124 | 5.9% | ±3.9% | 6.6% | 2.5% | 2.3% |
| HVAC (Non-unitary): Programmable Thermostat, Energy Management System, Chiller, Control | 36/69 | 15.2% | ±6.8% | 0.2% | 1.4% | 4.1% |
| VSD | 10/16 | 0.0% | ±0.0% | 0.0% | NA | 3.9% |
| Lighting: T8, Other Fluorescent, CFL, Controls, HID, LED Exit Signs | 51/123 | 13.4% | ±6.0% | 8.4% | 0.3% | 1.1% |
| Compressed Air | 55/113 | 0.0% | ±0.0% | 0.2% | 1.0% | 0.2% |
| Overall Design 2000plus Program | 241/516 | 5.9% | ±1.8% | 8.8% | 1.4% | 2.0% |

Overall survey and population participant counts do not equal the sum of measure category survey and population participant counts; the same participant may be represented in multiple measure categories.

Custom measures include six Comprehensive Program participants. The Comprehensive Program spillover rate was zero percent for 2007 installations.

Small Business Services Participant “Like” Spillover Rates. Table 1-7 summarizes the “like” spillover rates for year 2007 Small Business installations overall and by measure category. The overall Small Business Services program spillover rate was 2.0 percent, which is comparable with previous years’ rates.

**Table 1-7
National Grid Small Business Services Program Participant “Like” Spillover Rates
All Year 2007 Installations**

| Measure Description | Total Participant “Like” Spillover Rate | | | | | |
|--|---|-------------|-----------------------|-------------|-------------|-------------|
| | # Accounts (Survey/Pop) | 2007 | 2007 90% Error Margin | 2005 | 2004 | 2002 |
| Lighting: Fluorescent with ELIG/3’4’8’ Lamp & EEMAG, Standard Ballast, Exit Sign, Compact Fluorescent, HID | 243/1,329 | 2.2% | ±1.4% | 2.0% | 0.5% | 2.0% |
| Non-lighting: Water Heater Wrap, Programmable Thermostat, Economizer | 64/155 | 0.7% | ±1.3% | 1.0% | 0.3% | 0.6% |
| Overall Small Business Services Program | 284/1,441 | 2.0% | ±1.2% | 1.9% | 0.4% | 1.9% |

Overall survey and population participant counts do not equal the sum of measure category survey and population participant counts; the same participant may be represented in multiple measure categories.

State-level Participant “Like” Spillover Rates. Table 1-8 shows the “like” spillover rate for Massachusetts is 3.5 percent, New Hampshire is 2.1 percent, and Rhode Island is 4.6 percent. The surveyed number represents the number of accounts surveyed within each state.

**Table 1-8
National Grid State-level Program Participant “Like” Spillover Rates by Account
All Year 2007 Installations**

| Program | Total Participant “Like” Spillover Rates | | | | | | | | |
|-------------------------|--|----------------|------------------|---------------------|----------------|------------------|---------------------|----------------|------------------|
| | Massachusetts | | | New Hampshire | | | Rhode Island | | |
| | # Accounts Surveyed | 2007 Spillover | 90% Error Margin | # Accounts Surveyed | 2007 Spillover | 90% Error Margin | # Accounts Surveyed | 2007 Spillover | 90% Error Margin |
| Energy Initiative | 128 | 4.3% | ±2.4% | 8 | 0.0% | — | 42 | 0.4% | ±1.4% |
| Design 2000plus | 154 | 2.2% | ±1.5% | 8 | 0.0% | — | 78 | 14.2% | ±4.6% |
| Small Business Services | 127 | 2.5% | ±2.1% | 45 | 3.9% | ±2.1% | 112 | 1.1% | ±1.5% |
| ALL | 392 | 3.5% | ±1.3% | 60 | 2.1% | ±1.4% | 228 | 4.6% | ±2.0% |

Overall survey and population participant counts do not equal the sum of program survey and population participant counts; the same participant may be represented in multiple programs.

1.5 NONPARTICIPANT SPILLOVER ESTIMATES

Nonparticipant spillover refers to energy efficient measures installed by program nonparticipants due to the program’s influence. The program can have an influence on design professionals and vendors as well as an influence on product availability, product acceptance, customer expectations, and other market effects, all of which may induce nonparticipants to buy high efficiency products. Total nonparticipant spillover would also include responses from nonparticipating designers and vendors.

The methodology for the 2007 study estimated only a portion of nonparticipant like-measure spillover based on responses from design professionals and vendors participating in National Grid, United Illuminating, and Unitol’s Medium and Large Commercial programs². Cape Light Compact vendors were not included in this study due to insufficient data; however, two of the three vendors that were indicated within Cape Light Compacts’ vendor data overlapped with National Grid’s vendor sample and were surveyed.

The data for the analysis could have been collected from nonparticipants directly or from the design professionals and vendors who recommended, sold, and/or installed qualifying high

² Nonparticipant spillover for small business programs was not estimated because of the small number of vendors involved in delivering the program.

1. Executive Summary: National Grid...

efficiency equipment. We chose to survey the design professionals and vendors primarily because they could typically provide much more accurate information about the efficiency level of installed equipment than could the nonparticipants. Experience has shown that customers cannot provide enough data about the new equipment they have installed to allow for accurate estimates of the energy savings achieved from the equipment. While they usually can report what type of equipment was installed, they typically cannot provide sufficient information about the quantity, size, efficiency, and/or operation of that equipment to allow us to determine whether the equipment is "program-eligible." On the other hand, design professionals and equipment vendors who have worked with the program are typically more knowledgeable about equipment and are familiar with what is and is not "program-eligible."

Another argument in favor of using design professionals and equipment vendors to estimate nonparticipant spillover was that we could use data in the program tracking system database to attach kWh savings estimates to nonparticipant spillover. In the program tracking system database, measure-specific program kWh savings are associated with each design professional and vendor who participated in the program in 2007.

To determine nonparticipant spillover, design professionals and equipment vendors were asked (by measure category they installed in the program) what percent of their sales were program-eligible and what percent of these sales did not receive an incentive through the programs. They were then asked about the program's impact on their decision to recommend/install this efficient equipment outside the program. Using the survey responses and measure savings data from the program tracking system, the participating vendor nonparticipant like spillover savings could be estimated for each design professional/vendor and the results extrapolated to the total program savings.

This method of estimating nonparticipant spillover is a *conservative* estimate for two reasons. First, not all design professionals and equipment vendors who are familiar with the programs specified and/or installed equipment through the program in 2007. Thus, we miss any nonparticipant spillover that was associated with these other design professionals/vendors (although it is less likely these design professionals/vendors had nonparticipant spillover if they were not involved with the program in 2007).

Second, this method only allows us to extrapolate nonparticipant spillover for those same measure categories that a particular design professional/vendor was associated with for the 2007 programs. Thus, if a vendor installed program-eligible equipment in other measure categories in the year 2007 outside the program, but none through the program, we did not capture nonparticipant spillover savings with that particular type of equipment. In essence, we measured only "like" nonparticipant spillover; that is, spillover for measures like those installed through the program in 2007.

The nonparticipant spillover results for the Medium and Large Commercial and Industrial programs are based on surveys with 106 design professionals and vendors out of a population of 237 National Grid, United Illuminating, and Unitil vendors. Because of the significant overlap in sponsors' territories, as well as vendors across sponsors, we report the results in aggregate rather than by sponsor. The analysis indicates that the combined nonparticipant spillover from the medium and large commercial and industrial programs amounted to 2,603,307 kWh in the 2007 program year, which is approximately 2.6 percent% of the total savings produced by these programs combined (Table 1-9).

Table 1-9
Nonparticipant “Like” Spillover Results for Program Year 2007
National Grid, Unittel, and United Illuminating Vendors

| A | B | C | D | E | F | G | H | I |
|--------------------|--|--|-----------------------------------|--------------------------------------|---|-----------------------------------|---------------------|---|
| Survey Categories | Vendor Population kWh Savings ³ | Number of Firms Surveyed with kWh Savings/ Number of Firms in Program with kWh Savings | Surveyed kWh Savings ⁴ | Surveyed Savings Coverage Rate (D/B) | Nonparticipant Spillover from Surveyed Firms (kWh) ⁵ | Estimated Spillover Percent (F/D) | 90% CI | Nonparticipant Spillover Extrapolated to Population (kWh) (B*G) |
| Motors | 102,873 | 6/16 | 38,077 | 37.0% | 0 | 0.0% | 0.0% | 0 |
| HVAC | 10,877,314 | 27/60 | 2,175,565 | 20.0% | 79,149 | 3.6% | 0.7% to 3.5% | 395,726 |
| VSD ⁶ | 2,393,842 | 11/28 | 802,202 | 33.5% | 115,569 | 14.4% | 4.8% to 25.3% | 344,868 |
| Lighting | 56,560,136 | 60/151 | 20,074,391 | 35.3% | 603,572 | 3.0% | 1.0% to 4.6% | 1,700,580 |
| Compressed Air | 4,671,464 | 10/22 | 1,743,112 | 37.3% | 60,498 | 3.5% | 1.3% to 6.3% | 162,132 |
| Refrigeration | 4,758,046 | 2/6 | 1,197,312 | 25.2% | 0 | 0.0% | 0.0% | 0 |
| Other ⁷ | 19,474,884 | 10/33 | 4,998,940 | 25.7% | 0 | 0.0% | 0.0% | 0 |
| Total | 98,838,559 | 106/254 | 31,029,599 | 31.4% | 858,788 | 2.6% | 1.0% to 3.7% | 2,603,307 |

³ The vendor population kWh savings represents the total savings for all measures for Medium and Large C&I programs for actual vendors. Spillover is measured for each vendor associated with the program.

⁴ The total surveyed kWh savings represents the total savings for all surveyed design professionals and surveyed vendors in the program tracking system database whose names suggested they were actual vendors, not participants.

⁵ Net of “like” spillover for the customers associated with the surveyed design professionals/vendors, as identified from the participating customer survey.

⁶ One VSD response suggested spillover but could not respond to the percentage question (VNP3). We imputed the percentage with the values from other VSD vendors that could respond to this question. Only one case was considered in the imputation, with a value of 50 percent.

⁷ “Other” is a residual category consisting of measures remaining from “Custom” after equipment was reassigned to existing categories such as “Motors,” “HVAC,” or “Lighting,” as well as process equipment, process cooling equipment, and comprehensive chillers.