

State of Wisconsin
Department of Administration
Division of Energy

Focus on Energy Statewide Evaluation

*Business Programs End-use Specific
Attribution Factors—Fiscal Year 2006*

Final: April 20, 2007

Evaluation Contractor: PA Government Services Inc.

Prepared by: Miriam L. Goldberg, J. Ryan Barry, Paula Ham-Su,
and Aditya Chandraghatgi; KEMA Inc.



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State of Wisconsin Department of Administration Division of Energy

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Factors*

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Acknowledgment: Ralph Prah, Prah & Associates, contributed critical review and analysis.

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1. EXECUTIVE SUMMARY

1.1 INTRODUCTION

The primary purpose of this report is to provide end-use specific attribution factor results based on the FY06 statewide Focus on Energy Business Programs' impact evaluation data. The secondary purpose of this report is to provide a full series of sector level adjustment factors and additional analysis of the data that illustrate the effect the Channel Initiatives are having on each sector. The additional breakouts include the four primary sectors, the four primary sectors by Channel versus non-Channel measures, and CFL versus non-CFL measures in the Agriculture and Commercial sectors.

1.2 KEY RESULTS

The Business Programs have been continuously evolving since inception. Many of these changes have resulted in methodological changes over the years that may have affected the trends in adjustment factors that may not necessarily result from improvements or reductions in program effectiveness.¹ Three such changes in FY06 are with regards to CFLs.

1. Energy savings values for CFLs are deemed in FY06.
2. The attribution estimation method for CFLs changed in FY06 from one based on self-reported program response to market-based methods.
3. In FY06 all CFL savings tracked in the rebate database are being credited to the Channel Lighting.

These changes had a significant effect on the kWh and kW adjustment factors for the Agriculture and Commercial sectors, as well as the Business Programs overall. The effects of these changes are evident throughout the results presented in this report. Research conducted in the FY06 impact evaluation report indicates the dramatic increase in kWh and kW gross savings adjustment factors for Agriculture, Commercial, and the program overall are primarily a result of methodological changes and secondarily to improvements in program effectiveness.

1.2.1 End-use

The FY06 attribution factors by end-use are provided in Table 1-1. Amongst all segments CFLs had the highest attribution rate. This is due to the change in attribution estimation from self reported to market based. Following CFLs, the highest attribution results were for manufacturing process electric measures at 85 (kWh) and 77 (kW) percent. For both segments, the kWh and kW attribution rate increases are statistically significant at the 95 percent level of confidence.

¹ For more information on methodological changes that effected the FY06 analysis refer to the statewide Focus on Energy Business Programs impact evaluation methodology, refer to the recently finalized *Business Programs Impact Evaluation Report – Fiscal Year 2006 (March 2, 2007)*.

1. Executive Summary...

Following CFLs the highest attribution results are for manufacturing process electric measures, at 85 percent for kWh and 77 percent for kW. The manufacturing process therm rate was much lower at 30 percent.

**Table 1-1. Attribution Factors by End-use
Based on Samples from Participants Who Installed a Measure during FY06^a**

Segment	kWh				kW				Therms			
	n	Attribution Adjustment Factor	Standard Error		n	Attribution Adjustment Factor	Standard Error		n	Attribution Adjustment Factor	Standard Error	
			Jul05-Jun06	Extrapolated			Jul05-Jun06	Extrapolated			Jul05-Jun06	Extrapolated
Lighting (excluding CFLs)	110	63%	7.4%	7.6%	106	65%	7.6%	7.8%	0	*	*	*
HVAC	80	50%	7.5%	9.1%	50	51%	3.0%	3.5%	110	61%	7.7%	9.0%
Building Shell	0	*	*	*	0	*	*	*	12	57%	6.2%	7.0%
Manufacturing Process	69	85%	5.8%	7.1%	47	77%	8.0%	9.2%	23	30%	10.4%	14.6%
Other	24	73%	10.6%	12.0%	16	70%	9.7%	10.7%	34	47%	14.9%	18.6%
CFLs	112	96%	2.6%	3.0%	112	97%	2.3%	2.7%	0	*	*	*

^a The adjustment factor or standard error was not calculated because there were not enough sample points for this segment and energy type combination.

1.2.2 Additional Breakouts

Within the four primary sectors in FY06, CFLs directly contribute to higher kWh and kW attribution factors for the Agriculture and Commercial sectors. Also, the kWh and kW attribution rate for the Industrial sector are statistically higher in FY06 compared to the previous year.

The FY06 attribution factors by primary sector and Channel versus non-Channel measures show that the kWh and kW attribution factors for the Agriculture and Commercial sectors are statistically different from each other at the 95 percent level of confidence. Once again this is due to the change in attribution methods for CFLs. The high Industrial sector attribution result includes the lower results for the Channel measures associated with Industrial. Therefore, although attribution for the Channel measures is lower there are other significant factors contributing to increases in attribution for the Industrial sector.

The FY06 attribution factors by CFL/non-CFL in Agriculture and Commercial sectors shows that a change in CFL attribution methods from self-reported to market based produces much higher attribution results for CFLs compared with non-CFLs. The differences for both sectors and energy units are statistically different from each other at the 95 percent level of confidence.

1.2.3 End-use and Sector Attribution Over Time

To assess the stability of the end-use and sector-level comparisons, we examined these adjustment factors over time. Following are general patterns seen in attribution factors based on three cycles of end-use adjustment factors and five years of sector-level estimates:

- Changes both up and down are to be expected each year, even if the programs are consistently working to improve program attribution.
- Manufacturing process attribution factors have varied quite a bit, most likely because of the variability of project types and the potential for very large projects that can swing the averages one way or another. These swings can also affect overall attribution for the Industrial sector and for BP as a whole.

1. Executive Summary...

- HVAC attribution factors have been consistently below 60%, for both electric and gas measures.
- Non-CFL lighting attribution was low for FY03–04, but has been in the 60–70 percent range since then. CFL attribution prior to the adoption of the market-based estimation method was in a similar range.
- Building shell and “other” measures are too few in the sample to observe any general patterns.
- At the sector level, the Industrial sector shows the most variability in electric measure attribution over time, most likely related to swings due to large process projects. Apart from these swings, the only statistically significant change in sector electric attribution is for the Commercial sector in FY06, reflecting the methodological change for CFLs. For gas measures, greater variability is seen in all sectors, related to the smaller sample sizes as well as greater variability of the mix of project types.

2. INTRODUCTION

The primary purpose of this report is to provide end-use specific attribution factor results based on the FY06 statewide Focus on Energy Business Programs' impact evaluation data. A secondary purpose of the report is to provide sector level adjustment factors to show the effect of the Channel Initiatives on each sector.

In this section we summarize the evaluation approach and describe the organization of the remainder of the report.

2.1 OVERVIEW OF APPROACH

On March 2, 2007, the *Business Programs Impact Evaluation Report – Fiscal Year 2006* was finalized. This report presented a series of adjustment factors developed from data collected on measures implemented during FY06. The main objective in designing the sample for the FY06 study was to provide the best possible estimates for each of the four primary sectors (agriculture, commercial, industrial, and institutional) and channels (ECHI, Lighting, and Motors & VSDs²).

The adjustment factors estimated from the data collection and analysis include:

- **Gross savings adjustment factor:** This factor adjusts tracking gross savings for installation and changes based on the engineering review. Applying the gross savings adjustment factor to tracking gross savings produces the estimate of verified gross savings.
- **Attribution factor:** This factor adjusts verified gross savings for program attribution.
- **Realization rate:** This factor combines the gross savings adjustment factor and the attribution factor. (It is the ratio of net savings to tracking gross savings.)

This end-use specific attribution factor analysis uses the data collected for the FY06 impact evaluation to provide program attribution results by end-use. In addition these data are used to produce adjustment factor results for the four primary sectors, the four primary sectors by Channel versus non-Channel measures, and CFL versus non-CFL measures in the Agriculture and Commercial sectors.

2.2 ORGANIZATION OF REPORT

Section 3 of the report presents the rationale for this analysis, a brief review of the Focus Business Programs' impact evaluation methodology, and a summary of the adjustment factors presented in this report.

Section 4 provides the FY06 end-use specific attribution factor results for kWh, kW, and therms. A statistical comparison of attribution factors across years is also provided.

² Adjustment Factors were not calculated for the Motors & VSDs Channel because only fifteen customers, accounting for 0.03 percent of total program avoided cost in the sample frame, installed measures in FY06 through this channel.

2. Introduction...

Section 5 provides three additional breakouts of the impact evaluation data. Results are shown by the four primary sectors, the four primary sectors by Channel versus non-Channel measures, and CFL versus non-CFL measures in the Agriculture and Commercial sectors.

3. APPROACH

In this section we explain the rationale for this analysis and provide an abbreviated description of the impact evaluation methods.³

3.1 PURPOSE OF ANALYSIS

The primary purpose of this report is to provide end-use specific attribution factor results based on the FY06 statewide Focus on Energy Business Programs' impact evaluation data. The end-use classifications are as follows: Lighting excluding CFLs, HVAC, Building Shell, Manufacturing Process, Other, and CFLs. A similar analysis was conducted in FY05 that provided results for FY03 and FY04 combined and FY05. The FY05 end-use report⁴ included results by end-use and four firmographic attributes (participant size, number of locations, headquarters' location, and own/lease).

Last year's analysis did not find attribution rates to vary based on the firmographic attributes. The study "suggests participant size, number of locations, headquarters' location, and own/lease are secondary factors affecting attribution, if they are factors at all." Attribution did appear to vary by end-use. Furthermore, "when end-use mix is controlled for to the extent possible in this analysis, attribution does not appear to vary very much by participant size, number of locations, headquarters' location, or own/lease." As a result of these findings and approval of the PSC, KEMA did not repeat the firmographic attribution breakouts in FY06.

The end-use specific attribution analysis was repeated using the FY06 data. Although the comparisons across years were not particularly informative in last year's report it's important to provide the reader with historical perspective, even if the trend is inconsistent and not statistically significant across years. This year's end-use report using FY06 data shows the trends across years using a similar series of charts as used in the recently finalized *Business Programs Impact Evaluation Report – Fiscal Year 2006*.

The secondary purpose of this report is to provide a full series of sector level adjustment factors and additional analysis of the data that illustrate the effect the Channel Initiatives are having on each sector. The PSC has expressed particular interest in the effect the Channel Initiatives are having on the sector level adjustments factors. In FY06 the program implemented the Channel Initiatives and allocated energy savings from these measures to the Channels. The FY06 impact evaluation was designed and reported separately by sector and Channel. In FY07 the program reverted back to allocating all energy savings to the four primary sectors. The following breakouts provided in the present report investigate the influence of the Channels on the sector level adjustment factors.

³ For more information on the statewide Focus on Energy Business Programs Impact Evaluation methodology, refer to the recently finalized *Business Programs Impact Evaluation Report – Fiscal Year 2006 (March 2, 2007)*.

⁴ *Business Programs: End-use Specific Attribution Factors*. Focus on Energy Statewide Evaluation, October 28, 2005.

3. Approach...

- *Four primary sectors*
- *Four primary sectors by Channel versus non-Channel measures*
- *CFL versus non-CFL measures in Agriculture and Commercial sectors.*

A full set of adjustment factor results is provided for the four primary sectors. Gross savings, attribution, and realization rate results are provided for the four primary sectors by Channel versus non-Channel measures, and CFL versus non-CFL measures in the Agriculture and Commercial sectors breakouts.

3.2 GENERAL APPROACH

The broad approach of the impact evaluation fieldwork was similar to that used in the past. For the majority of the work KEMA used methodology, protocols, and instruments developed in the evaluation work conducted so far.⁵ The evaluation team has implemented eight rounds of data collection and a document review to estimate net energy savings for Business Programs. Each evaluation has included a telephone survey of Wisconsin Focus on Energy Business Programs participants who installed measures in the appropriate time frame. The most recent round included measures installed in FY06 (that is, between July 1, 2005, and June 30, 2006), identified in the Business Programs' tracking system (WATTS and rebates databases).

The survey addresses measure installation and characteristics (e.g., quantities, equipment efficiencies, and operating hours), program attribution, and program process issues, among other topics. Each evaluation has also included an engineering review of program documentation on how the tracking gross savings were calculated, where the tracking gross savings are the gross savings reported in the WATTS and rebate databases. This information is combined to develop the following adjustment factors.

1. Gross savings adjustment factor. This factor combines the installation rate and the engineering verification factor. It is the product of the Installation Rate and the Engineering Verification Factor.
2. Attribution factor. This factor adjusts verified gross savings for program attribution.
3. Realization rate. This factor simply combines the effect of all adjustment factors.

⁵ FY05: *Business Programs Impact Evaluation Report—Year 4, Round 1, June 1, 2005.*
 FY04: *Business Programs Impact Evaluation Report—Year 3, Round 1, June 17, 2004.*
 FY03: *Business Programs Impact Evaluation Report—Contract Year 2 Complete, January 14, 2004.*
 FY02: *Volume III, Impact Evaluation of the Business Programs Comprehensive Report, December 23, 2002.*

3. Approach...

The main objective in designing the sample for the FY06 study was to provide the best possible estimates for each of the four primary sectors and two Channel Initiatives.⁶ These six segments are treated as mutually exclusive segments in the FY06 impact evaluation. The sectors and Channels used in this FY06 analysis are:

- **Sectors:** Agriculture, Commercial, Industrial, and Schools & Government.
- **Channels:** Efficient Heating & Cooling Initiative and Channel Lighting.

Each of the adjustment factors is calculated separately for each energy unit (kWh, kW, and therms) in combination with each sector and Channel as well as for Business Programs overall. The calculation of the adjustment factors uses appropriate weights corresponding to the sampling rate within each stratum.

The end-use specific attribution factor analysis uses the data collected for the FY06 impact evaluation to provide additional looks at the data. First, program attribution results are provided by end-use. Then, adjustment factor results are provided for the four primary sectors alone, the Channel and non-Channel measures in each of the four primary sectors, and the CFL and non-CFL measures in the Agriculture and Commercial sectors.

The statistical precision for the breakouts provided in this report may not be as high as reported in the FY06 Business Programs impact evaluation report. This is a direct result of the sample design's primary objective to produce the best possible estimates for each of the four primary sectors and two Channels rather than the breakouts reported in this document. If the purpose of the FY06 impact evaluation was to develop estimates at the end-use or four primary sector levels, the sample would have been designed differently. Sampling strata and target sample sizes would have been developed to support the best estimates at these levels given budget constraints.

3.3 PRESENTATION OF RESULTS

The FY06 adjustment factors are provided in the tables below for kWh, kW, and therms with indicators of statistical precision, the standard errors, and sample sizes. The adjustment factors are calculated using a SAS[®] macro provided by SAS for ratio estimation by domains. The procedure also returns the standard error of the estimate. The standard error is calculated using two methods. The standard error labeled "Jul05-Jun06" is the standard error of the adjustment factor when it is applied to FY06 tracking gross savings only. The standard error labeled "extrapolated" is used when the adjustment factor is applied to later periods.⁷

⁶ Adjustment Factors were not calculated for the Motors & VSDs Channel because only fifteen customers, accounting for 0.03 percent of total program avoided cost in the sample frame, installed measures in FY06 through this channel.

⁷ The difference between the two standard errors is the use of the finite population correction factor in the estimation of current or prior years' standard errors. "Extrapolated" standard errors do not use this correction factor, resulting in higher standard errors that provide a more conservative forecast of future variability.

3. Approach...

Following the presentation of the FY06 adjustment factor estimates in the tables are a series of comparison charts similar to those provided in the FY06 impact evaluation report. A separate chart is provided for kWh, kW, and therms.⁸ Included in the charts are statistical difference comparisons at the 95 percent level of confidence.

The Business Programs have been continuously evolving since inception. Many of these changes have resulted in methodological changes over the years that may have affected the trends in adjustment factors that may not necessarily result from improvements or reductions in program effectiveness.⁹ Three such changes in FY06 are with regards to CFLs. These changes had a significant effect on the kWh and kW adjustment factors for the Agriculture and Commercial sectors, as well as the Business Programs overall. The effects of these changes are evident through-out the results presented in this report.

1. Energy savings values for CFLs are deemed in FY06. That is, savings per bulbs are predetermined, regardless of other characteristics such as changes in wattage or hours of operation, which have been used in prior rounds to estimate an engineering adjustment. The only potential adjustment for gross savings is based on the quantity of bulbs installed. The deemed values were developed with input from evaluation and are based on data collection in prior impact evaluations. Therefore the deeming method has resolved a prior source of discrepancy.
2. The attribution estimation method for CFLs changed in FY06 from one based on self-reported program response to market-based methods. The most current attribution factor calculated by the residential evaluation team was used for all CFLs reported in the rebates database. This attribution rate is 100 percent.¹⁰ This is a substantial increase compared to the Business Programs CFL attribution factors calculated in FY05 with self-reported program response methods.
3. In FY06 all CFL savings tracked in the rebate database are being credited to the Channel Lighting. Therefore these CFLs are not used to calculate the adjustment factors for the Agriculture and Commercial sectors. This point is one of the driving forces behind providing additional adjustment factors in section 5.

Analysis conducted as part of the FY06 impact evaluation report indicates the dramatic increase in kWh and kW gross savings adjustment factors for Agriculture, Commercial, and the program overall are primarily a result of methodological changes and secondarily to improvements in program effectiveness.

⁸ A therm chart is not provided for the CFL versus Non-CFL comparison because the program does not award therm savings for CFLs.

⁹ For more information on methodological changes that effected the FY06 analysis refer to the statewide Focus on Energy Business Programs Impact Evaluation methodology, refer to the recently finalized *Business Programs Impact Evaluation Report – Fiscal Year 2006 (March 2, 2007)*.

¹⁰ “FY04/05 Net-to-Gross Savings Adjustments for CFLs Rewarded through the ENERGY STAR Products Program,” memorandum to Oscar Bloch, Wisconsin DOA, dated January 11, 2006 (Revised Draft).

4. END-USE SPECIFIC ATTRIBUTION RESULTS

The primary purpose of this report is to provide end-use specific attribution factor results based on the FY06 statewide Focus on Energy Business Programs' impact evaluation data. These results are provided in this section.

4.1 FY06 RESULTS

The end-use specific attribution results are calculated for:

- Lighting (excluding CFLs)
- HVAC
- Building shell
- Manufacturing process
- Other (includes measures such as, low-flow showerheads, faucet aerators, pre-rinse sprayers, etc.)
- CFLs

The FY06 attribution factors by end-use are provided in Table 4-1. The high attribution results for CFLs are a direct result of the methodological changes described in the previous section. The attribution estimation method for CFLs changed in FY06 from one based on self-reported program response to market-based methods. Program attribution for all other measures continues to be determined using self-reported program response methods.

The most current market-based attribution factor calculated by the residential evaluation team was used for all CFLs reported in the rebates database. This attribution rate is 100 percent.¹¹ This is a substantial increase compared to the CFL attribution factors calculated in FY05 with self-reported program response methods. Two participants (one in the Commercial sectors and one in the Schools & Government sector) in the FY06 engineering sample installed CFLs as part of a larger project. These CFLs were not delivered by the program in the same point-of-purchase manner as the CFLs recorded in the rebates database. The program attribution for the CFLs installed by these two participants was determined using the same self-reported program response methods used for the entire implemented project. This resulted in CFL attribution factors that are below 100 percent.

Following CFLs the highest attribution results are for manufacturing process electric measures, at 85 percent for kWh and 77 percent for kW. The manufacturing process therm rate was much lower at 30 percent.

¹¹ "FY04/05 Net-to-Gross Savings Adjustments for CFLs Rewarded through the ENERGY STAR Products Program," memorandum to Oscar Bloch, Wisconsin DOA, dated January 11, 2006 (Revised Draft).

4. End-Use Specific Attribution Results...

**Table 4-1. Attribution Factors by End-use
Based on Samples from Participants Who Installed a Measure during FY06^a**

Segment	kWh				kW				Therms			
	n	Attribution Adjustment Factor	Standard Error		n	Attribution Adjustment Factor	Standard Error		n	Attribution Adjustment Factor	Standard Error	
			Jul05-Jun06	Extrapolated			Jul05-Jun06	Extrapolated			Jul05-Jun06	Extrapolated
Lighting (excluding CFLs)	110	63%	7.4%	7.6%	106	65%	7.6%	7.8%	0	*	*	*
HVAC	80	50%	7.5%	9.1%	50	51%	3.0%	3.5%	110	61%	7.7%	9.0%
Building Shell	0	*	*	*	0	*	*	*	12	57%	6.2%	7.0%
Manufacturing Process	69	85%	5.8%	7.1%	47	77%	8.0%	9.2%	23	30%	10.4%	14.6%
Other	24	73%	10.6%	12.0%	16	70%	9.7%	10.7%	34	47%	14.9%	18.6%
CFLs	112	96%	2.6%	3.0%	112	97%	2.3%	2.7%	0	*	*	*

^a The adjustment factor or standard error was not calculated because there were not enough sample points for this segment and energy type combination.

Figure 4-1 through Figure 4-3 show the attribution factors by end-use over time for kWh, kW, and therms. The comparison charts incorporate impact evaluation data collection for the FY03 through FY06 studies. A cross-hatched bar in the charts indicates that the increase or decrease of the adjustment factor compared to the previous fiscal year's result is statistically significant at the 95 percent level of confidence.

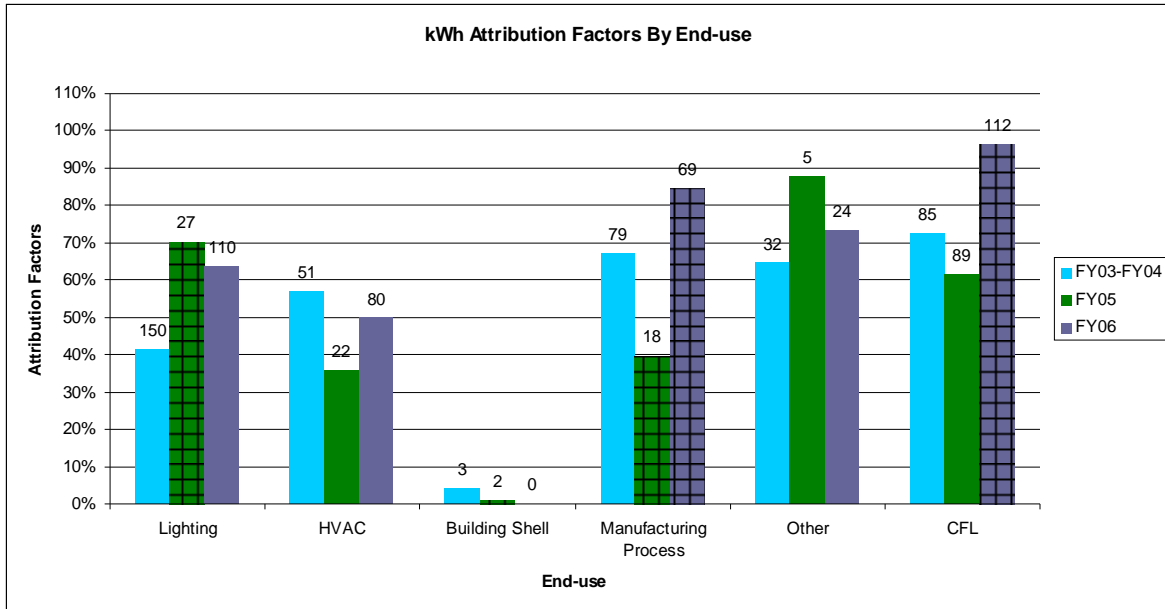
The kWh and kW attribution rate increases for manufacturing process and CFLs are statistically significant at the 95 percent level of confidence. However comparison of the end-use results across years should be viewed with caution due to small sample sizes and uncertainty whether these differences are affected by the technology mix and program delivery between the two time periods, and to what extent. Furthermore, a small number of large projects in a given year, with high or low attribution can have a significant effect on the attribution result for that end-use.

Following are some general observations from the end-use attribution factors across years:

- Changes both up and down are to be expected each year, even if the programs are consistently working to improve program attribution.
- HVAC attribution factors have been consistently below 60 percent, for both electric and gas measures.
- Manufacturing process attribution factors have varied quite a bit, most likely because of the variability of project types and the potential for very large projects that can swing the averages one way or another. The current year results show a factor below 30 percent for therms and above 80 percent for kWh.
- Non-CFL lighting attribution was low for FY03–04, but has been in the 60–70 percent range since then. CFL attribution prior to the adoption of the market-based method was in a similar range.
- Building shell and “other” measures are too few in the sample to observe any general patterns.

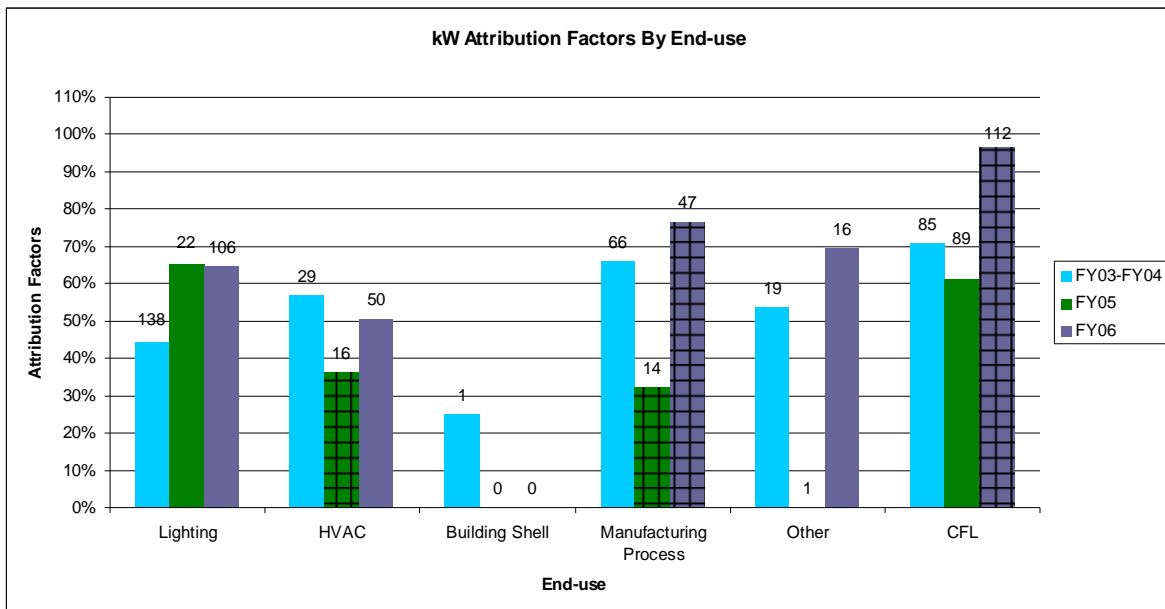
4. End-Use Specific Attribution Results...

Figure 4-1. kWh Attribution Factors by End-use Comparison across Years^a



^a The number above the bar is the sample size. A cross-hatched bar in the charts indicates that the increase or decrease of the adjustment factor compared to the previous fiscal year's result is statistically significant at the 95 percent level of confidence.

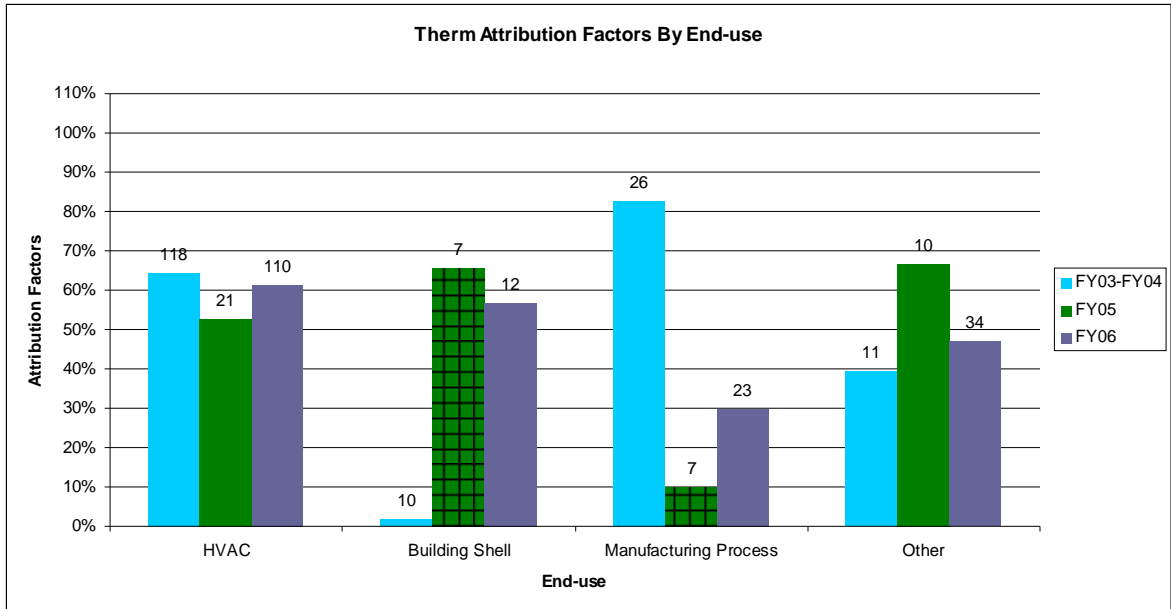
Figure 4-2. kW Attribution Factors by End-use Comparison across Years^a



^a The number above the bar is the sample size. A cross-hatched bar in the charts indicates that the increase or decrease of the adjustment factor compared to the previous fiscal year's result is statistically significant at the 95 percent level of confidence.

4. End-Use Specific Attribution Results...

Figure 4-3. Therm Attribution Factors by End-use Comparison across Years^a



^a The number above the bar is the sample size. A cross-hatched bar in the charts indicates that the increase or decrease of the adjustment factor compared to the previous fiscal year's result is statistically significant at the 95 percent level of confidence.

5. ADDITIONAL ADJUSTMENT FACTOR RESULTS

The secondary purpose of this report is to provide a full series of sector level adjustment factors and additional analysis of the data that illustrate the effect of the Channel Initiatives on each sector. The PSC has expressed particular interested in the effect the Channel Initiatives are having on the sector level adjustments factors. In FY06 the program implemented the Channel Initiatives and allocated energy savings from these measures to the Channels. The FY06 impact evaluation was designed and reported separately by sector and Channel. In FY07 the program reverted back to allocating all energy savings to the four primary sectors. The three additional breakouts provided in this section investigate the influence of the Channels on the sector level adjustment factors. The additional breakouts are:

- *Four primary sectors.* Results are provided for the Agriculture, Commercial, Industrial, and School & Governments sectors. In this breakout each Channel measure in the sample is included in the calculation of the adjustment factors for its associated sector.
- *Four primary sectors by Channel versus non-Channel measures.* The FY06 results for the Four Primary Sectors are further disaggregated to show adjustment factors for Channel and Non-Channel measures within each sector. This second breakout, in conjunction with the first one described above, provides an interesting look at the effect the Channels are having on the sector level adjustment factors.
- *CFL versus non-CFL measures in Agriculture and Commercial sectors.* This breakout was provided in the previous three impact evaluation reports. It was not provided in the FY06 BP report because the CFLs were not credited to the Agriculture and Commercial sectors in FY06. In FY07 the program is reverting back to allocating all energy savings to the four primary sectors. Therefore, it is worthwhile to show these results even though the comparison across years is less informative in light of the methodological changes to the determination of savings estimates and attribution for CFLs in FY06.

5.1 FOUR PRIMARY SECTORS

The four primary sectors are:

- Agriculture
- Commercial
- Industrial
- Schools & Government¹²

¹² Schools & Government sector is referred to as Institutional in the tables and charts.

These comparison charts for the four primary sectors incorporate up to eight rounds of impact evaluation data collection (earlier fiscal years received multiple rounds of data collection) going back to the start of the program in April 2001. A cross-hatched bar in the charts indicates that the increase or decrease of the adjustment factor compared to the previous fiscal year's result is statistically significant at the 95 percent level of confidence.

5.1.1 Gross Savings Adjustment Factors by Primary Sector

Table 5-1 shows the FY06 gross savings adjustment factors by primary sector. The gross savings adjustment factors combine the installation rates and the engineering verification factors to adjust the tracking estimate of gross savings. The results for all sectors are high and not an area of concern.

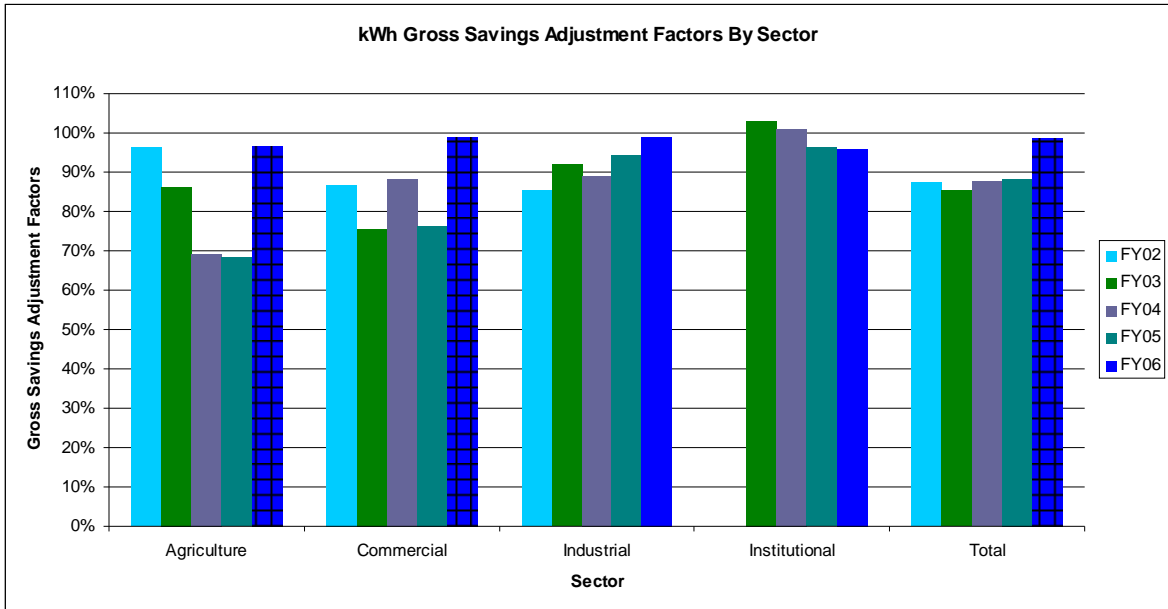
**Table 5-1. Gross Savings Adjustment Factors by Primary Sector
Based on Samples from Participants Who Installed a Measure during FY06**

Segment	kWh			kW			Therms		
	Gross Savings Adjustment	Standard Error ^a		Gross Savings Adjustment	Standard Error ^a		Gross Savings Adjustment	Standard Error ^a	
		Jul05-Jun06	Extrapolated		Jul05-Jun06	Extrapolated		Jul05-Jun06	Extrapolated
Agriculture	97%	3.8%	3.9%	90%	4.7%	4.8%	96%	1.8%	2.1%
Commercial	99%	1.5%	1.5%	100%	1.8%	1.8%	97%	1.4%	1.7%
Industrial	99%	0.8%	0.9%	99%	0.7%	0.8%	102%	2.5%	3.6%
Institutional	96%	1.8%	2.2%	98%	0.9%	1.3%	89%	5.1%	6.0%
Business Programs Overall	99%	0.8%	0.9%	98%	1.2%	1.2%	98%	1.9%	2.6%

^a The standard errors shown are conservative; they are calculated using an approximation that overstates the standard error.

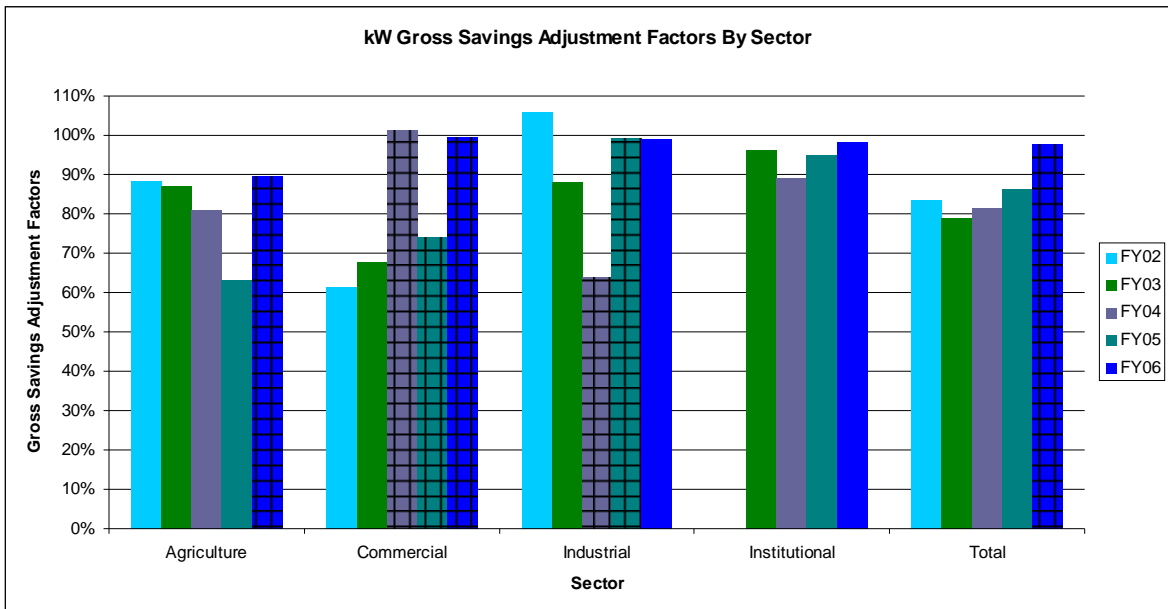
Figure 5-1 through Figure 5-3 show the gross savings adjustment factors by primary sector overtime for kWh, kW, and therms. The deemed CFL methods in FY06 result in much higher kWh and kW gross savings adjustment factors for Agriculture, Commercial and Business Programs overall.

Figure 5-1. kWh Gross Savings Adjustment Factors by Primary Sector Comparison across Years^a



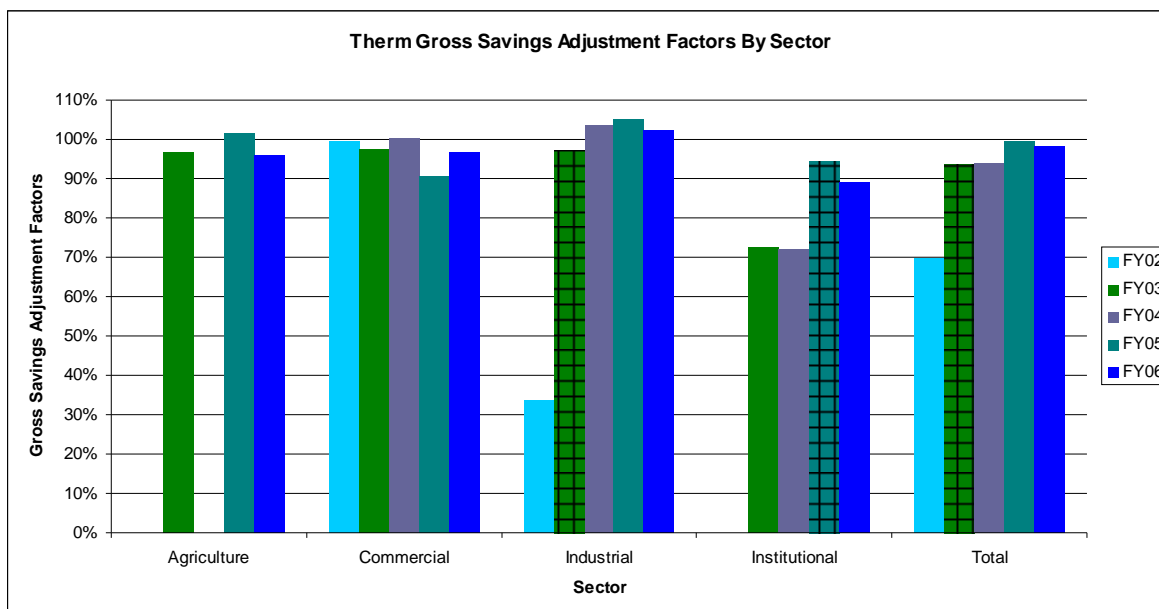
^a A cross-hatched bar in the charts indicates that the increase or decrease of the adjustment factor compared to the previous fiscal year's result is statistically significant at the 95 percent level of confidence.

Figure 5-2. kW Gross Savings Adjustment Factors by Primary Sector Comparison across Years



^a A cross-hatched bar in the charts indicates that the increase or decrease of the adjustment factor compared to the previous fiscal year's result is statistically significant at the 95 percent level of confidence.

Figure 5-3. Therm Gross Savings Adjustment Factors by Primary Sector Comparison across Years^a



^a For the agriculture segment, the FY04 adjustment factor for therms was estimated with inadequate accuracy. Hence, the results are essentially uninformative and they are not reported. In part, the agriculture segment savings adjustment factor for therms was difficult to estimate with adequate accuracy because many of the agriculture segment therms savings (both tracking and verified) were negative due to fuel switching (from electricity to gas). A cross-hatched bar in the charts indicates that the increase or decrease of the adjustment factor compared to the previous fiscal year's result is statistically significant at the 95 percent level of confidence.

5.1.2 Attribution Factors by Primary Sector

The FY06 attribution factors by primary sector are provided in Table 5-2.

Table 5-2. Attribution Factors by Primary Sector Based on Samples from Participants Who Installed a Measure during FY06

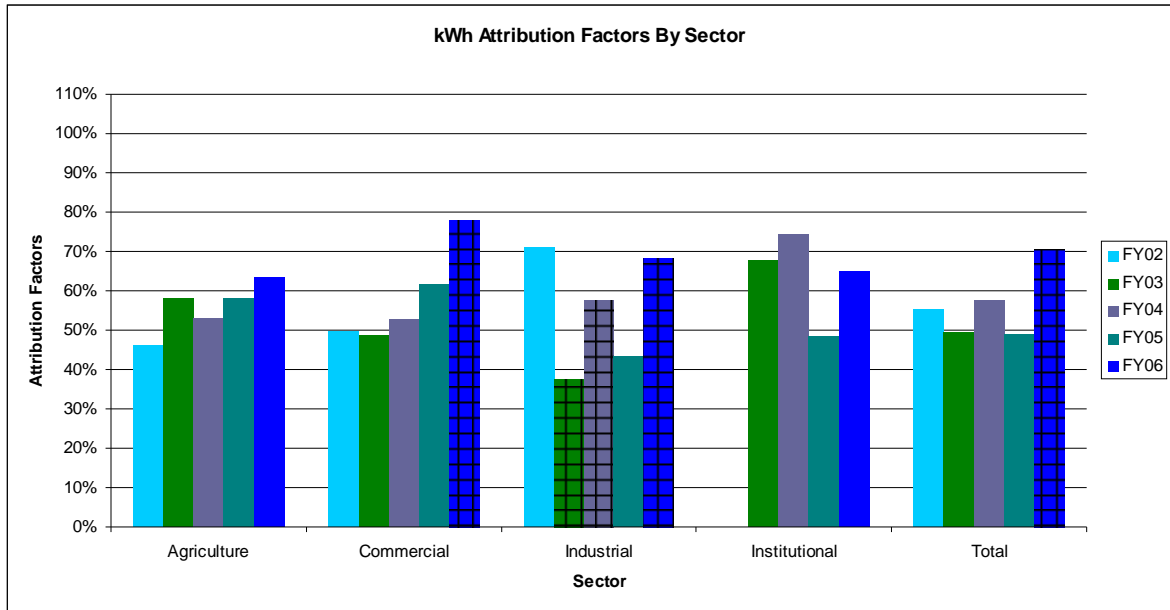
Segment	kWh				kW				Therms			
	n	Attribution Adjustment Factor	Standard Error		n	Attribution Adjustment Factor	Standard Error		n	Attribution Adjustment Factor	Standard Error	
			Jul05-Jun06	Extrapolated			Jul05-Jun06	Extrapolated			Jul05-Jun06	Extrapolated
Agriculture	110	63%	3.1%	3.5%	102	60%	3.8%	4.1%	22	60%	8.9%	10.2%
Commercial	132	78%	4.3%	5.4%	110	83%	3.3%	4.1%	57	49%	8.0%	11.0%
Industrial	57	68%	8.2%	8.7%	51	65%	8.0%	8.3%	31	37%	8.8%	12.5%
Institutional	37	65%	8.1%	9.6%	28	58%	5.4%	6.9%	53	69%	8.5%	9.3%
Business Programs Overall	336	71%	4.6%	4.9%	291	70%	4.4%	4.6%	163	53%	7.0%	8.6%

Figure 5-4 through Figure 5-6 show the attribution factors by primary sector overtime for kWh, kW, and therms. The market-based attribution methods for CFL in FY06 result in higher kWh and kW attribution factors for Agriculture and Commercial sectors. The kWh and kW attribution rate for Industrial are statistically higher in FY06 compared to the previous year.

As was seen for the end-use factors over time, changes both up and down are to be expected each year, even if the programs are consistently working to improve program attribution. For electric measures, the Industrial sector shows the most variability over time,

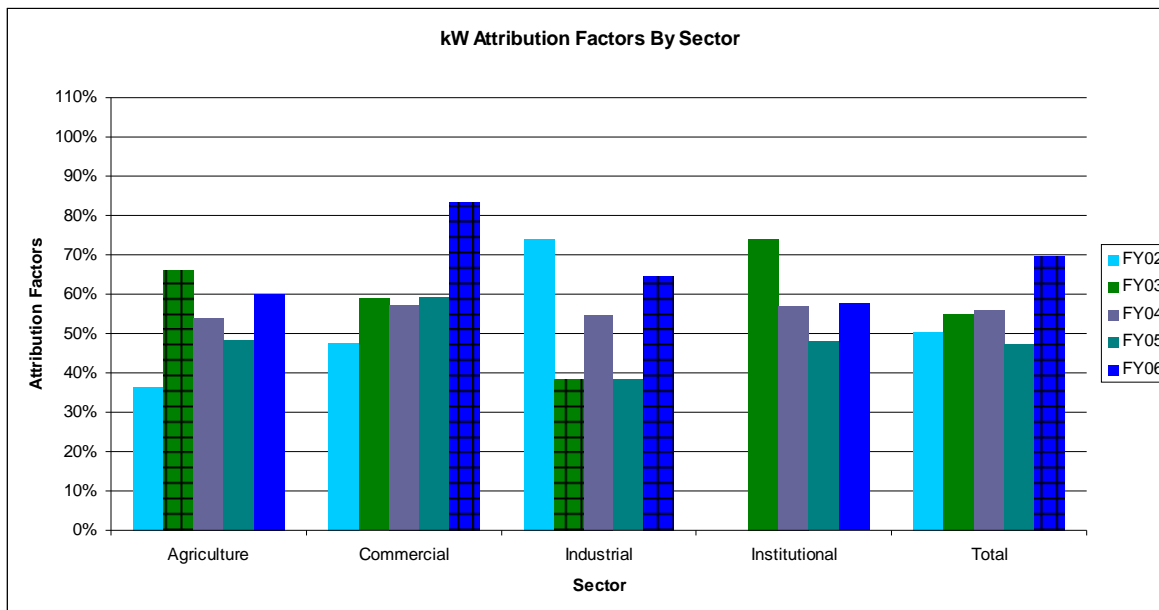
most likely related to swings due to large process projects. Apart from these swings, the only statistically significant change is for the Commercial sector in FY06, reflecting the methodological change for CFLs. For gas measures, greater variability is seen in all sectors, related to the smaller sample sizes as well as greater variability of the mix of project types.

Figure 5-4. kWh Attribution Factors by Primary Sector Comparison across Years^a



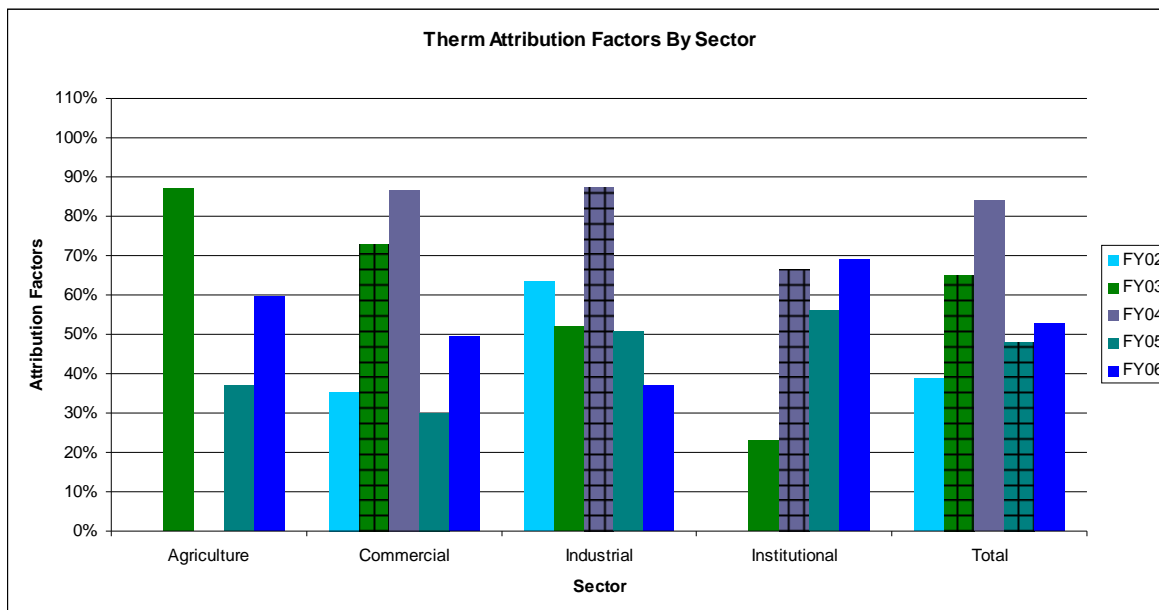
^a A cross-hatched bar in the charts indicates that the increase or decrease of the adjustment factor compared to the previous fiscal year's result is statistically significant at the 95 percent level of confidence.

Figure 5-5. kW Attribution Factors by Primary Sector Comparison across Years^a



^a A cross-hatched bar in the charts indicates that the increase or decrease of the adjustment factor compared to the previous fiscal year's result is statistically significant at the 95 percent level of confidence.

Figure 5-6. Therm Attribution Factors by Primary Sector Comparison across Years^a



^a For the agriculture segment, the FY04 adjustment factor for therms was estimated with inadequate accuracy. Hence, the results are essentially uninformative and they are not reported. In part, the agriculture segment savings adjustment factor for therms was difficult to estimate with adequate accuracy because many of the agriculture segment therms savings (both tracking and verified) were negative due to fuel switching (from electricity to gas). A cross-hatched bar in the charts indicates that the increase or decrease of the adjustment factor compared to the previous fiscal year's result is statistically significant at the 95 percent level of confidence.

5.1.3 Realization Rates by Primary Sector

Table 5-3 shows the FY06 realization rates by primary sector. The realization rates combine the effect of the gross savings adjustment factors and the attribution factors.

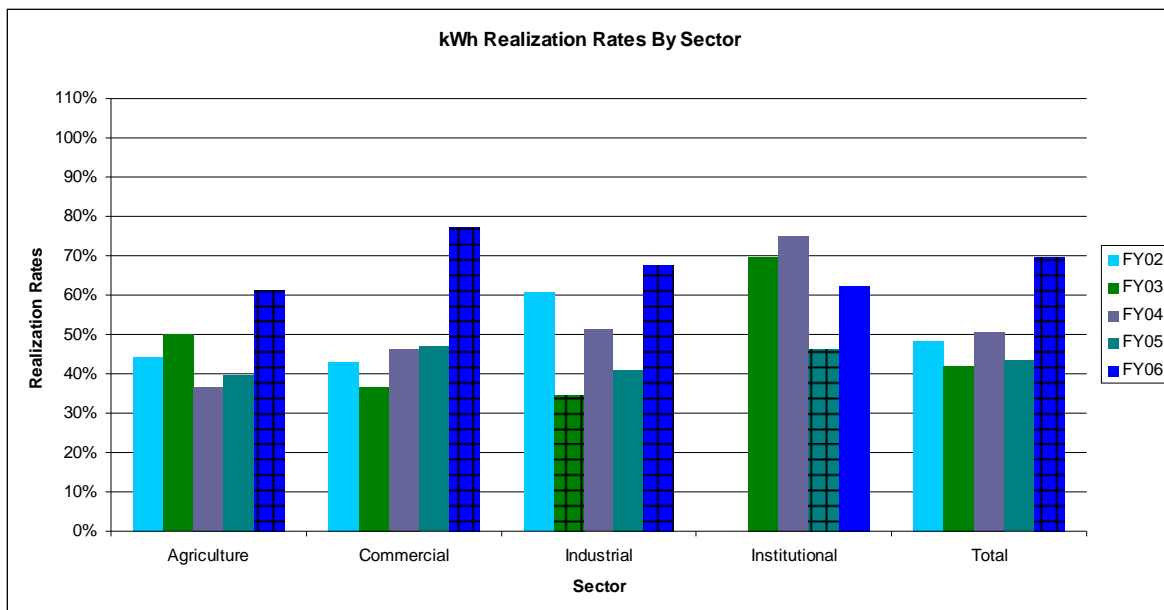
**Table 5-3. Realization Rates by Primary Sector
Based on Samples from Participants Who Installed a Measure during FY06**

Segment	Realization Rate	Standard Error ^a		Realization Rate	Standard Error ^a		Realization Rate	Standard Error ^a	
		Jul05-Jun06	Extrapolated		Jul05-Jun06	Extrapolated		Jul05-Jun06	Extrapolated
		Agriculture	61%		3.9%	4.2%		54%	4.4%
Commercial	77%	4.4%	5.5%	83%	3.6%	4.3%	48%	7.8%	10.7%
Industrial	68%	8.1%	8.6%	64%	8.0%	8.3%	38%	9.1%	12.8%
Institutional	62%	7.8%	9.3%	57%	5.3%	6.9%	61%	8.4%	9.2%
Business Programs Overall	70%	4.5%	4.9%	68%	4.4%	4.6%	52%	7.0%	8.6%

^a The standard errors shown are conservative; they are calculated using an approximation that overstates the standard error.

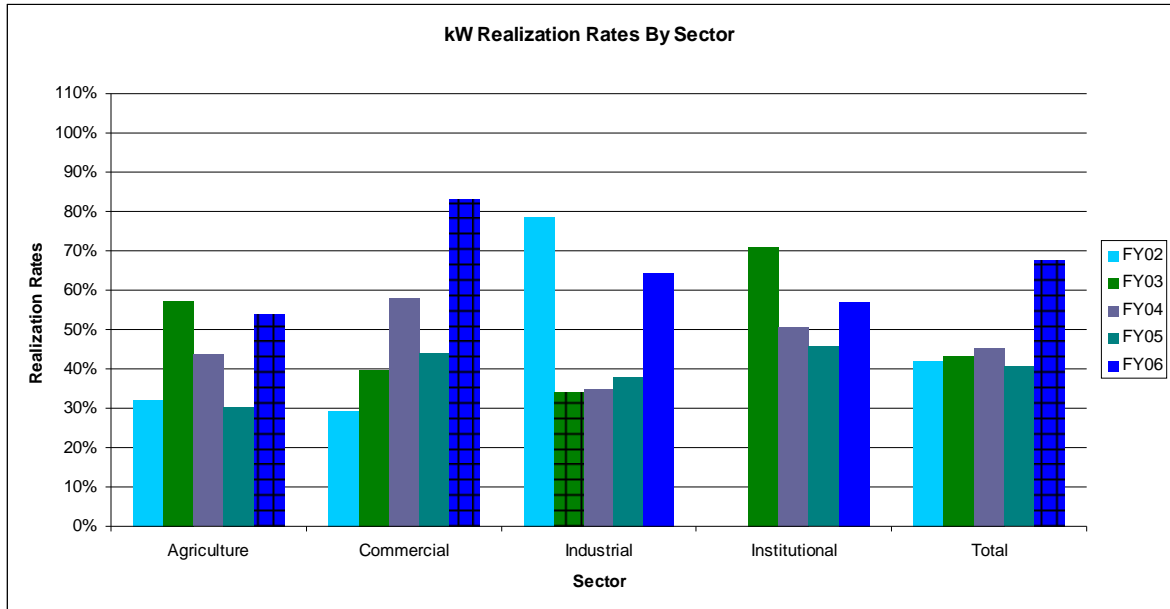
Figure 5-7 through Figure 5-9 show the realization rates by primary sector overtime for kWh, kW, and Therms. The kWh and kW realization rates are increased for all four sectors in FY06.

**Figure 5-7. kWh Realization Rates by Primary Sector
Comparison across Years^a**



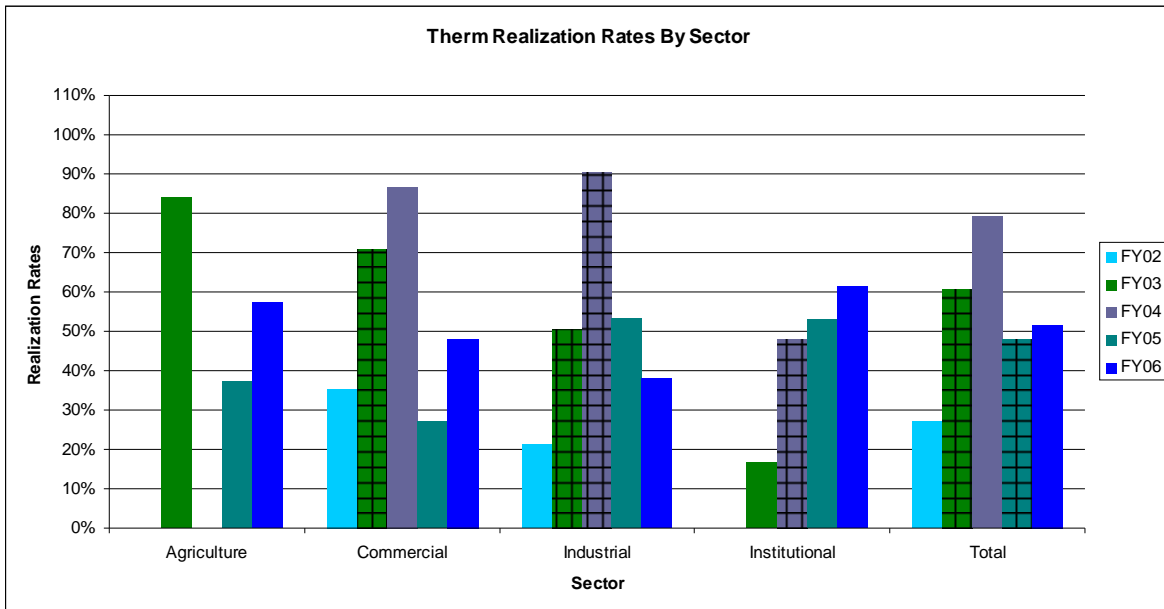
^a A cross-hatched bar in the charts indicates that the increase or decrease of the adjustment factor compared to the previous fiscal year's result is statistically significant at the 95 percent level of confidence.

Figure 5-8. kW Realization Rates by Primary Sector Comparison across Years^a



^a A cross-hatched bar in the charts indicates that the increase or decrease of the adjustment factor compared to the previous fiscal year's result is statistically significant at the 95 percent level of confidence.

Figure 5-9. Therm Realization Rates by Primary Sector Comparison across Years^a



^a For the agriculture segment, the FY04 adjustment factor for therms was estimated with inadequate accuracy. Hence, the results are essentially uninformative and they are not reported. In part, the agriculture segment savings adjustment factor for therms was difficult to estimate with adequate accuracy because many of the agriculture segment therms savings (both tracking and verified) were negative due to fuel switching (from electricity to gas). A cross-hatched bar in the charts indicates that the increase or decrease of the adjustment factor compared to the previous fiscal year's result is statistically significant at the 95 percent level of confidence.

5.1.4 Installation and Engineering Factors Rates by Primary Sector

Table 5-4 and Table 5-5 show the FY06 installation rate and engineering verification factors by primary sector. The product of these factors is the gross savings adjustment factor.

**Table 5-4. Installation Rates by Primary Sector
Based on Samples from Participants Who Installed a Measure during FY06**

Segment	kWh				kW				Therms			
	n	Installation Rate	Standard Error		n	Installation Rate	Standard Error		n	Installation Rate	Standard Error	
			Jul05-Jun06	Extrapolated			Jul05-Jun06	Extrapolated			Jul05-Jun06	Extrapolated
Agriculture	111	100%	0.2%	0.2%	103	100%	0.2%	0.2%	22	96%	1.8%	2.1%
Commercial	134	100%	0.4%	0.4%	112	99%	0.5%	0.5%	58	99%	1.1%	1.1%
Industrial	57	100%	<0.1%	<0.1%	51	100%	<0.1%	0.0%	31	100%	<0.1%	<0.1%
Institutional	37	100%	<0.1%	<0.1%	28	100%	<0.1%	0.0%	55	98%	1.3%	1.4%
Business Programs Overall	339	100%	0.1%	0.1%	294	100%	0.2%	0.2%	166	99%	0.6%	0.6%

**Table 5-5. Engineering Verification Factors by Primary Sector
Based on Samples from Participants Who Installed a Measure during FY06**

Segment	kWh				kW				Therms			
	n	Engineering Verification Factor	Standard Error		n	Engineering Verification Factor	Standard Error		n	Engineering Verification Factor	Standard Error	
			Jul05-Jun06	Extrapolated			Jul05-Jun06	Extrapolated			Jul05-Jun06	Extrapolated
Agriculture	58	97%	3.8%	3.9%	57	90%	4.7%	4.8%	3	100%	<0.1%	<0.1%
Commercial	84	99%	1.4%	1.5%	78	100%	1.7%	1.8%	10	98%	1.0%	1.3%
Industrial	26	99%	0.8%	0.9%	22	99%	0.7%	0.8%	21	102%	2.5%	3.6%
Institutional	15	96%	1.8%	2.2%	13	98%	0.9%	1.3%	17	91%	5.1%	6.0%
Business Programs Overall	182	99%	0.8%	0.9%	170	98%	1.2%	1.2%	51	99%	1.9%	2.5%

5.2 FOUR PRIMARY SECTORS BY CHANNEL VS. NON-CHANNEL MEASURES

The FY06 results for the four primary sectors are further disaggregated in this section to investigate the effect the Channel Initiative measures are having on the adjustment factors for each sector.

The comparison charts illustrate the difference between each sector's Channel and non-Channel adjustment factors. A cross-hatched bar in the charts indicates the difference between the Channel and non-Channel adjustment factors is statistically significant at the 95 percent level of confidence. The number of respondents is not shown in the gross savings and realization rate charts because these factors are calculated as the product of other ratios.

5.2.1 Gross Savings Adjustment Factors by Channel vs. Non-Channel Measures

Table 5-6 shows the FY06 gross savings adjustment factors by primary sector and Channel versus non-Channel measures. The gross savings adjustment factors combine the installation rates and the engineering verification factors to adjust the tracking estimate of gross savings.

Table 5-6. Gross Savings Adjustment Factors by Channel vs. Non-Channel Measures Based on Samples from Participants Who Installed a Measure during FY06^b

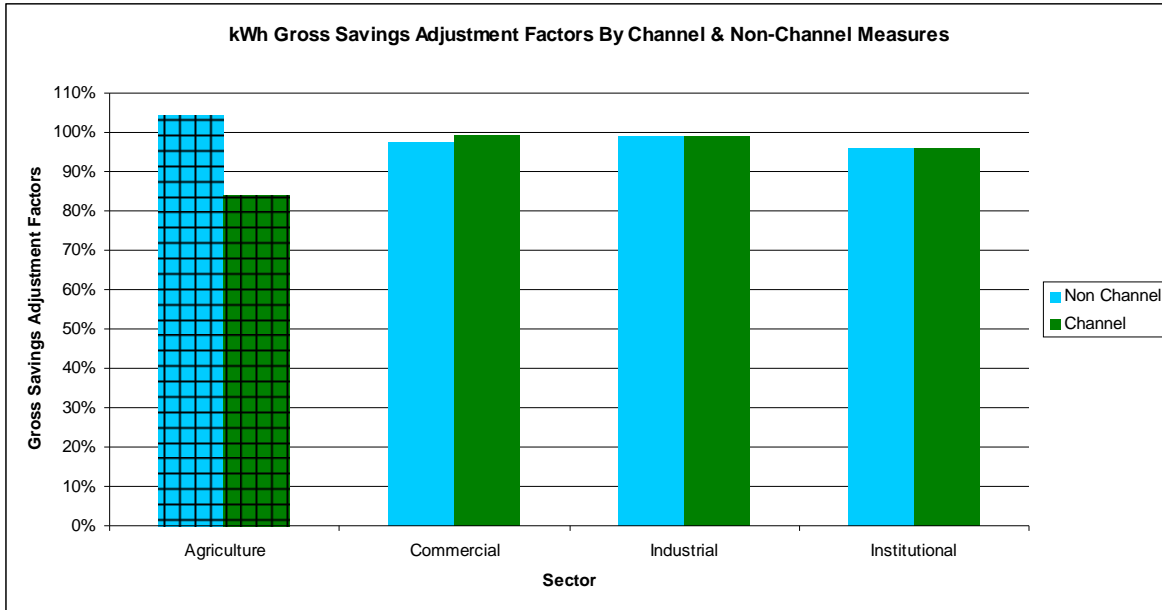
Segment	kWh			kW			Therms		
	Gross Savings Adjustment	Standard Error ^a		Gross Savings Adjustment	Standard Error ^a		Gross Savings Adjustment	Standard Error ^a	
		Jul05-Jun06	Extrapolated		Jul05-Jun06	Extrapolated		Jul05-Jun06	Extrapolated
Agriculture Non Channel	104%	4.5%	4.6%	93%	6.4%	6.5%	96%	2.1%	2.4%
Agriculture Channel	84%	5.4%	5.4%	84%	5.4%	5.5%	100%	<0.1%	<0.1%
Commercial Non Channel	97%	1.7%	2.0%	98%	1.5%	1.5%	97%	1.5%	1.8%
Commercial Channel	99%	1.2%	1.2%	100%	1.1%	1.1%	98%	0.3%	0.3%
Industrial Non Channel	99%	0.8%	0.9%	99%	0.7%	0.8%	102%	2.5%	3.6%
Industrial Channel	99%	0.1%	0.1%	99%	0.1%	0.1%	102%	<0.1%	<0.1%
Institutional Non Channel	96%	1.8%	2.2%	98%	0.9%	1.3%	88%	5.2%	6.1%
Institutional Channel	96%	<0.1%	<0.1%	*	*	*	91%	<0.1%	<0.1%

^a The standard errors shown are conservative; they are calculated using an approximation that overstates the standard error.

^b The adjustment factor or standard error was not calculated because there were not enough sample points for this segment and energy type combination.

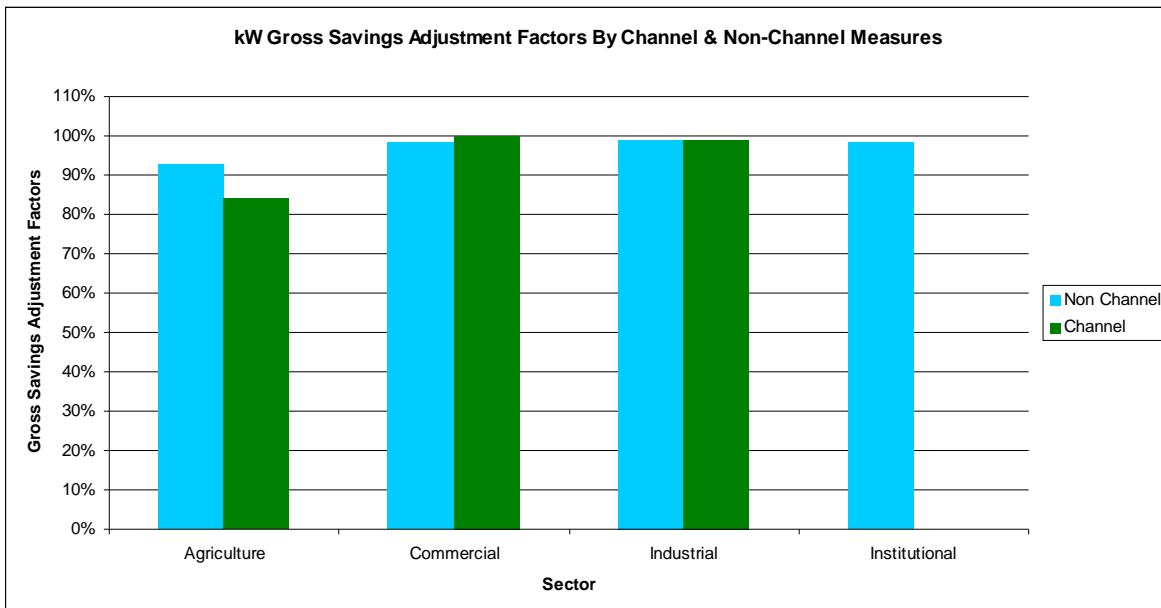
Figure 5-10 through Figure 5-12 provide a FY06 Channel versus non-Channel comparison of gross savings adjustment factors for each sector for kWh, kW, and therms. Although CFL energy savings per bulb is calculated using a deemed value, the evaluation team does confirm the quantity of bulbs installed. The 84 percent kWh gross savings adjustment factor for the Agriculture sector is a result of fewer bulbs being installed than in the tracking system. This sector's kWh gross savings adjustment factors for Channel and non-Channel measures are statistically different from each other at the 95 percent level of confidence.

**Figure 5-10. kWh Gross Savings Adjustment Factors by Primary Sector
FY06 Channel vs. Non-Channel Comparison^a**



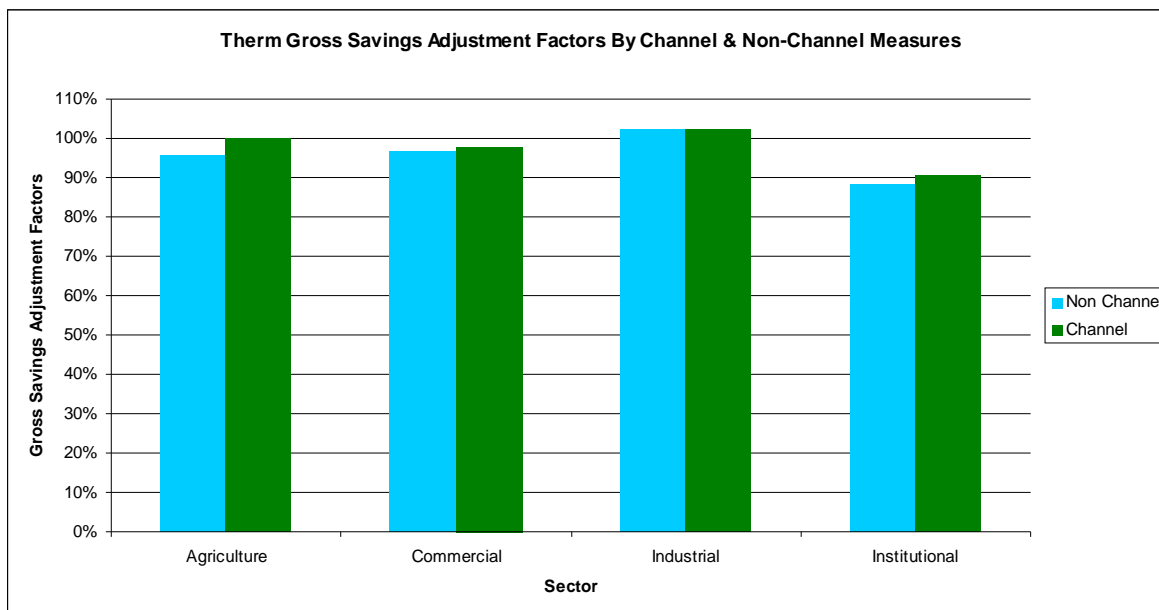
^a A cross-hatched bar in the charts indicates the difference between the Channel and non-Channel adjustment factors is statistically significant at the 95 percent level of confidence.

**Figure 5-11. kW Gross Savings Adjustment Factors by Primary Sector
FY06 Channel vs. Non-Channel Comparison^a**



^a There are no Channel kW savings in the Institutional (Schools and Government) sector sample. This is due to: (a) a low level of participation of this sector in Channel initiatives, and (b) a sample design that did not target sectors within Channels.

**Figure 5-12. Therm Gross Savings Adjustment Factors by Primary Sector
FY06 Channel vs. Non-Channel Comparison**



5.2.2 Attribution Factors by Channel vs. Non-Channel Measures

The FY06 attribution factors by primary sector and Channel versus non-Channel measures are provided in Table 5-7. The kWh and kW attribution factors for the Agriculture and Commercial sectors are statistically different from each other at the 95 percent level of confidence. As mentioned before, this is a direct result of the change in attribution methods for CFLs. Apart from this change, there are no statistically significant differences between the Channel and non-Channel sector-level attribution factors. The high Industrial sector attribution result reported in the previous section includes the lower results for the Channel measures associated with Industrial. Therefore, although attribution for the Channel measures is lower there are other significant factors contributing to increases in attribution for the Industrial sector.

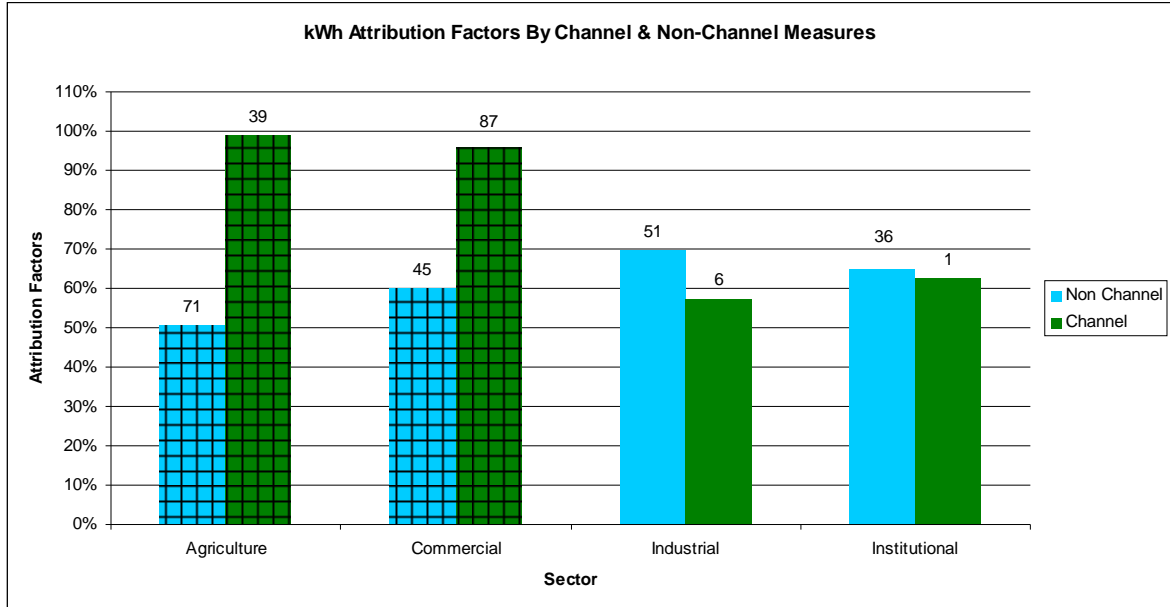
**Table 5-7. Attribution Factors by Channel vs. Non-Channel Measures
Based on Samples from Participants Who Installed a Measure during FY06^a**

Segment	kWh				kW				Therms			
	n	Attribution Adjustment Factor	Standard Error		n	Attribution Adjustment Factor	Standard Error		n	Attribution Adjustment Factor	Standard Error	
			Jul05-Jun06	Extrapolated			Jul05-Jun06	Extrapolated			Jul05-Jun06	Extrapolated
Agriculture Non Channel	71	51%	3.0%	3.4%	65	44.5%	3.7%	4.1%	19	60%	9.5%	10.9%
Agriculture Channel	39	99%	0.7%	0.7%	37	100.2%	0.1%	0.1%	3	52%	5.6%	5.7%
Commercial Non Channel	45	60%	8.4%	10.9%	30	57.8%	8.6%	9.6%	39	51%	8.7%	11.9%
Commercial Channel	87	96%	2.6%	2.7%	80	95.6%	2.5%	2.6%	18	35%	7.3%	7.5%
Industrial Non Channel	51	70%	9.0%	9.5%	46	65.6%	9.0%	9.3%	27	37%	8.9%	12.6%
Industrial Channel	6	57%	10.4%	10.8%	5	57.5%	10.3%	10.7%	4	31%	12.0%	12.5%
Institutional Non Channel	36	65%	8.1%	9.6%	28	57.8%	5.4%	6.9%	51	58%	6.6%	8.2%
Institutional Channel	1	63%	*	*	0	*	*	*	2	92%	0.5%	0.5%

^aThe adjustment factor or standard error was not calculated because there were not enough sample points for this segment and energy type combination.

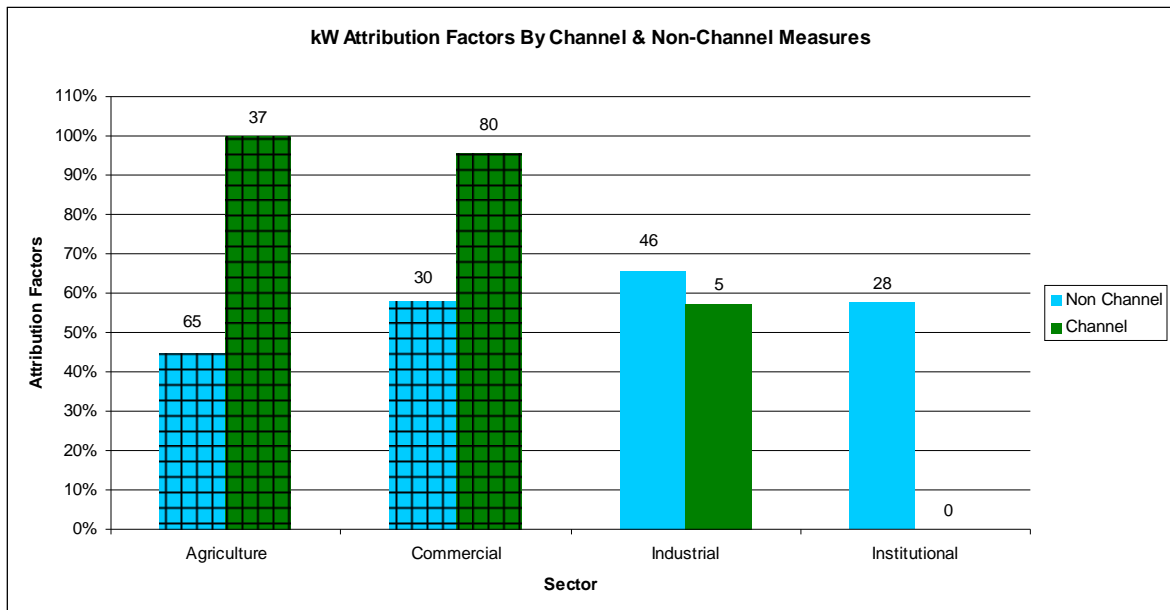
Figure 5-13 through Figure 5-15 provide a FY06 Channel versus non-Channel comparison of attribution factors for each sector for kWh, kW, and therms.

**Figure 5-13. kWh Attribution Factors by Primary Sector
FY06 Channel vs. Non-Channel Comparison^a**



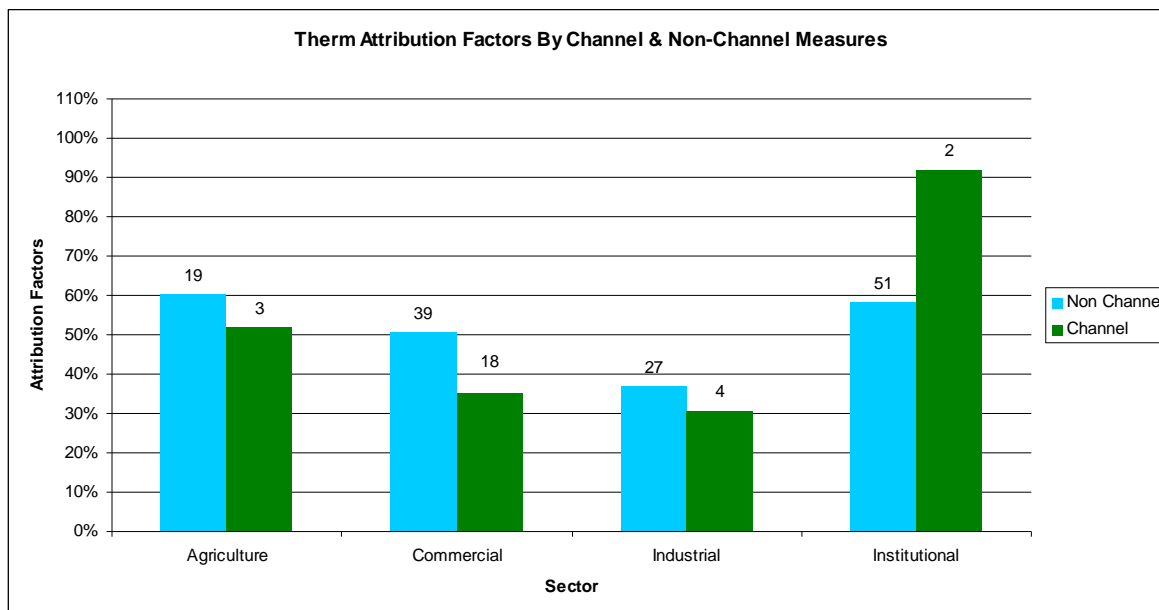
^a The number above the bar is the sample size. A cross-hatched bar in the charts indicates the difference between the Channel and non-Channel adjustment factors is statistically significant at the 95 percent level of confidence.

**Figure 5-14. kW Attribution Factors by Primary Sector
FY06 Channel vs. Non-Channel Comparison^a**



^a The number above the bar is the sample size. There are no Channel kW savings in the Institutional (Schools and Government) sector sample. This is due to: (a) a low level of participation of this sector in Channel initiatives, and (b) a sample design that did not target sectors within Channels. A cross-hatched bar in the charts indicates the difference between the Channel and non-Channel adjustment factors is statistically significant at the 95 percent level of confidence.

**Figure 5-15. Therm Attribution Factors by Primary Sector
FY06 Channel vs. Non-Channel Comparison^a**



^a The number above the bar is the sample size.

5.2.3 Realization Rates by Channel vs. Non-Channel Measures

Table 5-8 shows the FY06 realization rates by primary sector and Channel versus non-Channel measures. The realization rates combine the effect of the gross savings adjustment factors and the attribution factors.

**Table 5-8. Realization Rates by Channel vs. Non-Channel Measures
Based on Samples from Participants Who Installed a Measure during FY06^b**

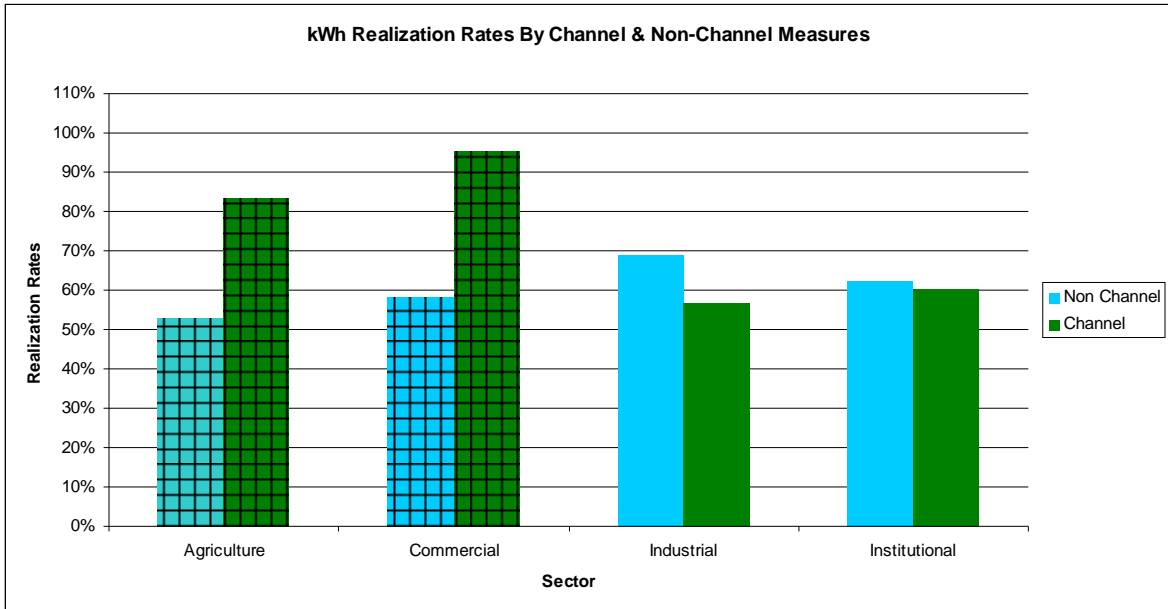
Segment	Realization Rate	Standard Error ^a		Realization Rate	Standard Error ^a		Realization Rate	Standard Error ^a	
		Jul05-Jun06	Extrapolated		Jul05-Jun06	Extrapolated		Jul05-Jun06	Extrapolated
Agriculture Non Channel	53%	3.9%	4.3%	41%	4.5%	4.8%	58%	9.2%	10.5%
Agriculture Channel	83%	5.3%	5.4%	84%	5.5%	5.5%	52%	5.6%	5.7%
Commercial Non Channel	58%	8.3%	10.7%	57%	8.5%	9.5%	49%	8.5%	11.6%
Commercial Channel	95%	2.8%	2.9%	96%	2.8%	2.8%	34%	7.1%	7.3%
Industrial Non Channel	69%	9.0%	9.4%	65%	8.9%	9.2%	38%	9.2%	13.0%
Industrial Channel	57%	10.3%	10.7%	57%	10.2%	10.6%	31%	12.3%	12.8%
Institutional Non Channel	62%	7.8%	9.3%	57%	5.3%	6.9%	52%	6.6%	8.1%
Institutional Channel	60%	<0.1%	<0.1%	*	*	*	84%	0.5%	0.5%

^a The standard errors shown are conservative; they are calculated using an approximation that overstates the standard error.

* The adjustment factor or standard error was not calculated because there were not enough sample points for this segment and energy type combination.

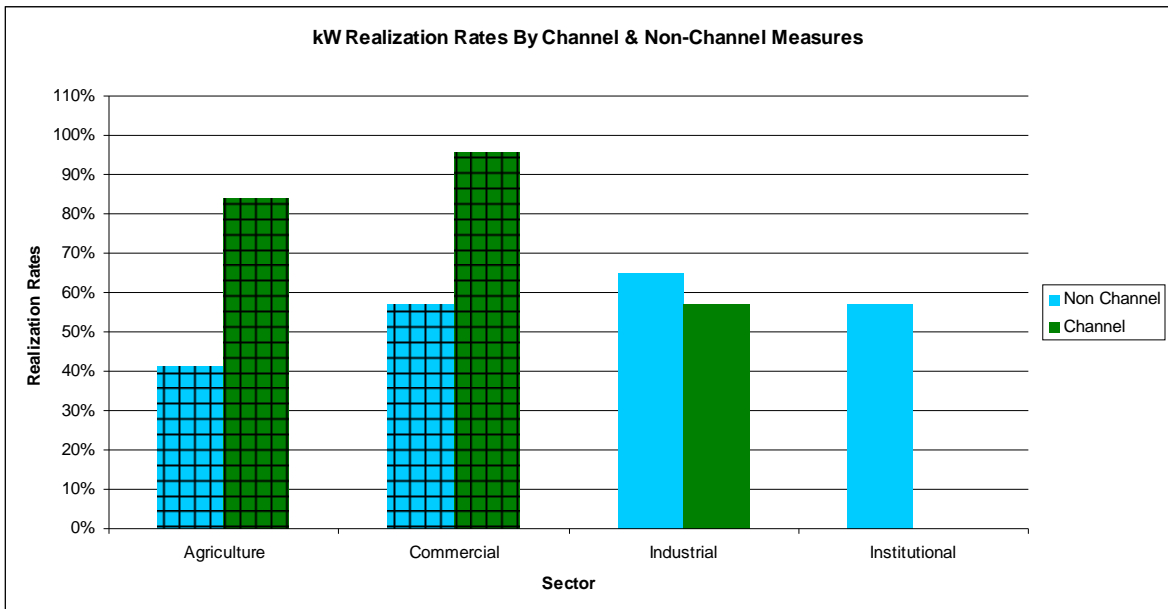
Figure 5-16 through Figure 5-18 provide a FY06 Channel versus non-Channel comparison of attribution factors for each sector for kWh, kW, and therms.

**Figure 5-16. kWh Realization Rates by Primary Sector
FY06 Channel vs. Non-Channel Comparison^a**



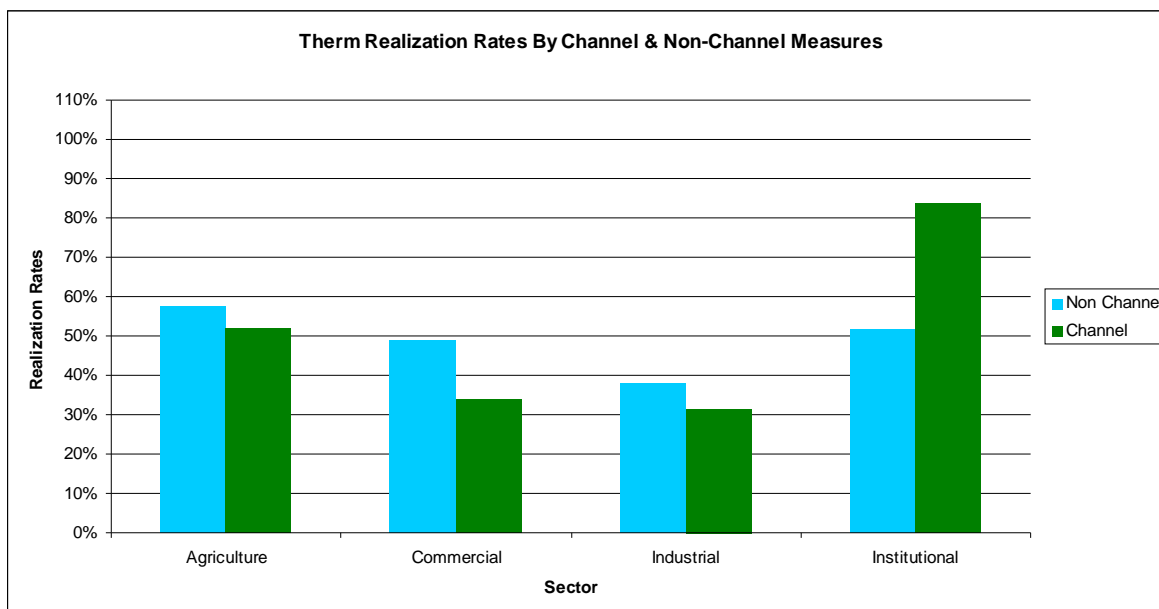
^a A cross-hatched bar in the charts indicates the difference between the Channel and non-Channel adjustment factors is statistically significant at the 95 percent level of confidence.

**Figure 5-17. kW Realization Rates by Primary Sector
FY06 Channel vs. Non-Channel Comparison^a**



^a There are no Channel kW savings in the Institutional (Schools and Government) sector sample. This is due to: (a) a low level of participation of this sector in Channel initiatives, and (b) a sample design that did not target sectors within Channels. A cross-hatched bar in the charts indicates the difference between the Channel and non-Channel adjustment factors is statistically significant at the 95 percent level of confidence.

**Figure 5-18. Therm Realization Rates by Primary Sector
FY06 Channel vs. Non-Channel Comparison**



5.3 CFL VS. ALL OTHER (NON-CFL) MEASURES

This section provides adjustment factors for the Agriculture and Commercial sectors broken out by CFL and all other (“non-CFL”) measures. This series of adjustment factors had been reported in the FY03, FY04, and FY05 Business Programs impact evaluation reports. These results were particularly meaningful because all CFL savings in the rebates database were credited to the Agriculture and Commercial sectors and historically CFLs have accounted for more than half of the Agriculture and Commercial sectors’ electric savings.

In FY06 all CFL savings tracked in the rebates database were credited to the Channel Lighting sector. Therefore, these CFLs were not used to calculate the adjustment factors for the Agriculture and Commercial sectors. As a result of this change the CFL and non-CFL breakout was not provided in the FY06 Business Programs impact evaluation report. In FY07, the program is reverting back to allocating all energy savings to the four primary sectors. Therefore it is worthwhile to show these results.

The comparison charts incorporate impact evaluation data collection for the FY03 through FY06 studies. A cross-hatched bar in the charts indicates the increase or decrease of the adjustment factor compared to the previous fiscal year’s result is statistically significant at the 95 percent level of confidence. The following two changes to the calculation of the CFL adjustment factors had a significant effect of the FY06 results.

1. Energy savings values for CFLs are deemed in FY06. That is, savings per bulbs are predetermined, regardless of other characteristics such as changes in wattage or hours of operation, which have been used in prior rounds to estimate an engineering adjustment. The only potential adjustment for gross savings is based on the quantity of bulbs installed. The deemed values were developed with input from the evaluation team and are based on data collection in prior impact

evaluations. Therefore the deeming method has resolved a prior source of discrepancy.

2. The attribution estimation method for CFLs changed in FY06 from one based on self-reported program response to market-based methods. The most current attribution factor calculated by the residential evaluation team was used for all CFLs reported in the rebates database. This attribution rate is 100 percent.¹³ This is a substantial increase compared to the CFL attribution factors calculated in FY05 with self-reported program response methods.

5.3.1 Gross Savings Adjustment Factors by CFL/NON-CFL

Table 5-9 shows the FY06 gross savings adjustment factors by CFL and non-CFL measure in the Agriculture and Commercial sectors.

The CFL and non-CFL kWh attribution factors for the Agriculture sector are statistically different from each other at the 95 percent level of confidence. Although CFL energy savings is calculated using a deemed value, the evaluation team does confirm the quantity of bulbs installed. The 84 percent gross savings adjustment factor for Agriculture sector is a result of fewer bulbs being installed than in the tracking system. The Agriculture sector's CFL and non-CFL kW gross savings adjustment factors, and the factors for both of the Commercial sector's energy types are not statistically different from each other at the 95 percent level of confidence.

**Table 5-9. Gross Savings Adjustment Factors by CFL/NON-CFL
Based on Samples from Participants Who Installed a Measure during FY06**

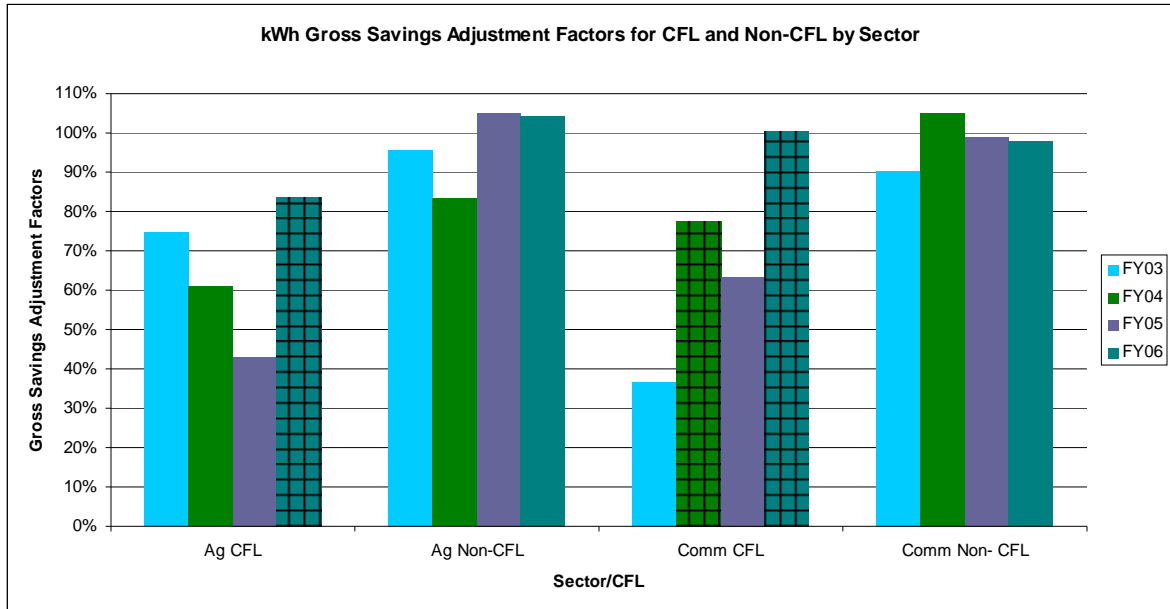
Segment	kWh			kW		
	Gross Savings Adjustment Factor	Standard Error ^a		Gross Savings Adjustment Factor	Standard Error ^a	
		Jul05-Jun06	Extrapolated		Jul05-Jun06	Extrapolated
Agriculture CFL	84%	5.0%	5.1%	84%	5.1%	5.1%
Agriculture non-CFL	104%	4.5%	4.6%	93%	6.4%	6.5%
Commercial CFL	100%	2.0%	2.0%	100%	2.0%	2.0%
Commercial non-CFL	98%	1.6%	1.9%	100%	0.4%	0.4%

^a The standard errors shown are conservative; they are calculated using an approximation that overstates the standard error.

Figure 5-19 and Figure 5-20 show the gross savings adjustment factors by CFL/non-CFL overtime for kWh and kW. The change to deemed CFL methods in FY06 result in much higher kWh and kW gross savings adjustment factors for CFLs in both sectors.

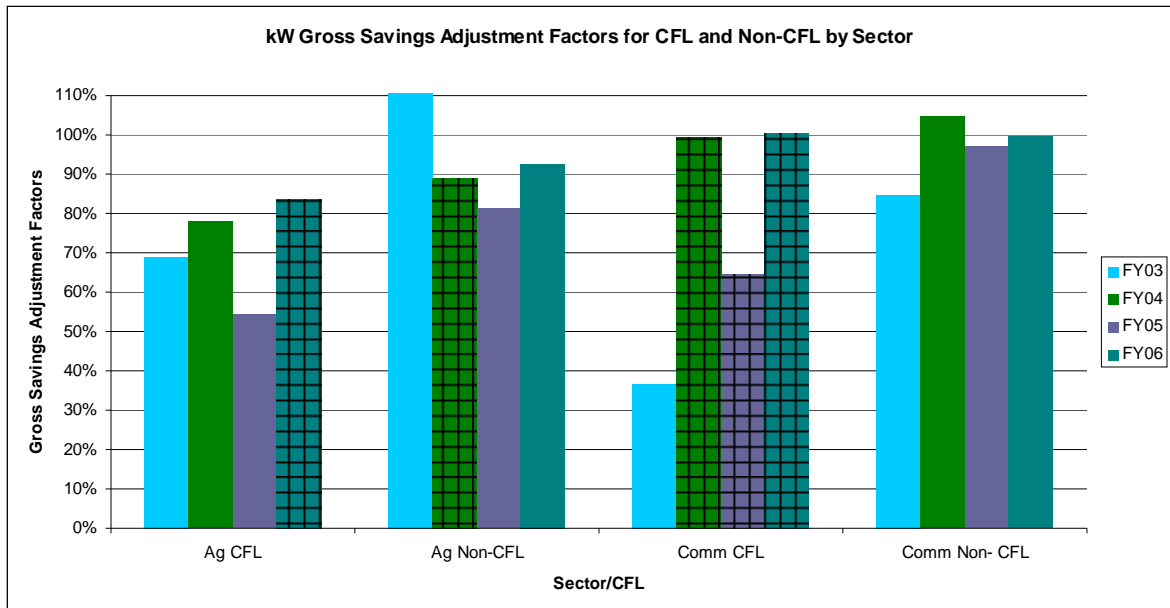
¹³ "FY04/05 Net-to-Gross Savings Adjustments for CFLs Rewarded through the ENERGY STAR Products Program," memorandum to Oscar Bloch, Wisconsin DOA, dated January 11, 2006 (Revised Draft).

Figure 5-19. kWh Gross Savings Adjustment Factors by CFL/NON-CFL Comparison across Years^a



^a A cross-hatched bar in the charts indicates that the increase or decrease of the adjustment factor compared to the previous fiscal year's result is statistically significant at the 95 percent level of confidence.

Figure 5-20. kW Gross Savings Adjustment Factors by CFL/NON-CFL Comparison across Years^a



^a A cross-hatched bar in the charts indicates that the increase or decrease of the adjustment factor compared to the previous fiscal year's result is statistically significant at the 95 percent level of confidence.

5.3.2 Attribution Factors by CFL/NON-CFL

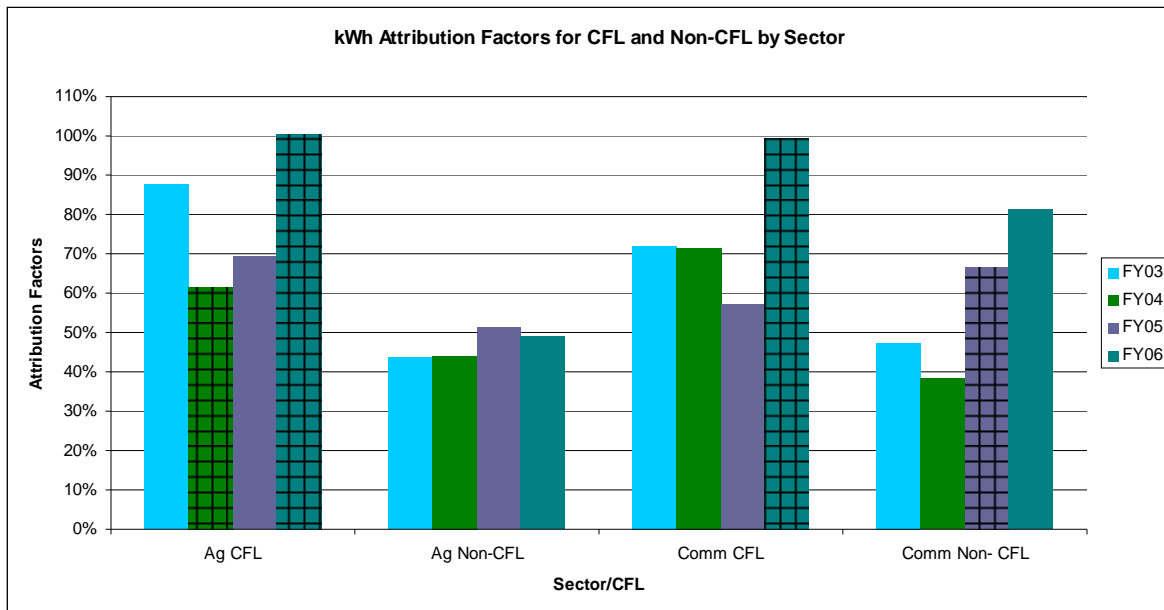
The FY06 attribution factors by CFL/non-CFL are provided in Table 5-10. The change to market-based attribution methods produces much higher attribution results for CFLs compared with non-CFLs. The differences for both sectors and energy units is statistically different from each other at the 95 percent level of confidence.

Table 5-10. Attribution Factors by CFL/NON-CFL Based on Samples from Participants Who Installed a Measure during FY06

Segment	kWh				kW			
	n	Attribution Adjustment Factor	Standard Error		n	Attribution Adjustment Factor	Standard Error	
			Jul05-Jun06	Extrapolated			Jul05-Jun06	Extrapolated
Agriculture CFL	42	100%	<0.1%	<0.1%	42	100%	<0.1%	<0.1%
Agriculture non-CFL	68	49%	3.0%	3.5%	60	42%	3.8%	4.2%
Commercial CFL	69	99%	1.0%	1.1%	69	99%	0.9%	1.1%
Commercial non-CFL	63	81%	6.1%	6.6%	41	85%	4.5%	4.8%

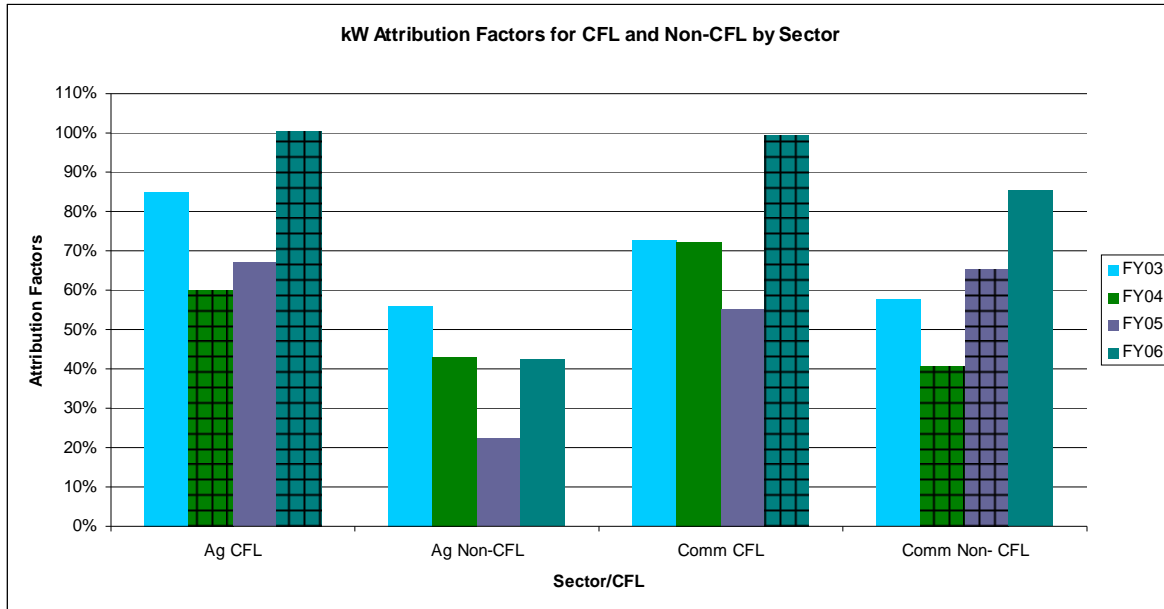
Figure 5-21 through Figure 5-22 show the attribution factors by CFL/non-CFL overtime for kWh, kW, and therms. As expected the use of market-based attribution methods for CFLs in FY06 results in much higher kWh and kW attribution factors for both sectors compared to previous years.

Figure 5-21. kWh Attribution Factors by CFL/NON-CFL Comparison across Years^a



^a A cross-hatched bar in the charts indicates that the increase or decrease of the adjustment factor compared to the previous fiscal year's result is statistically significant at the 95 percent level of confidence.

Figure 5-22. kW Attribution Factors by CFL/NON-CFL Comparison across Years^a



^a A cross-hatched bar in the charts indicates that the increase or decrease of the adjustment factor compared to the previous fiscal year's result is statistically significant at the 95 percent level of confidence.

5.3.3 Realization Rates by CFL/NON-CFL

Table 5-11 shows the FY06 realization rates by CFL/non-CFL. The realization rates combine the effect of the gross savings adjustment factors and the attribution factors. The differences for both sectors and energy units is statistically different from each other at the 95 percent level of confidence.

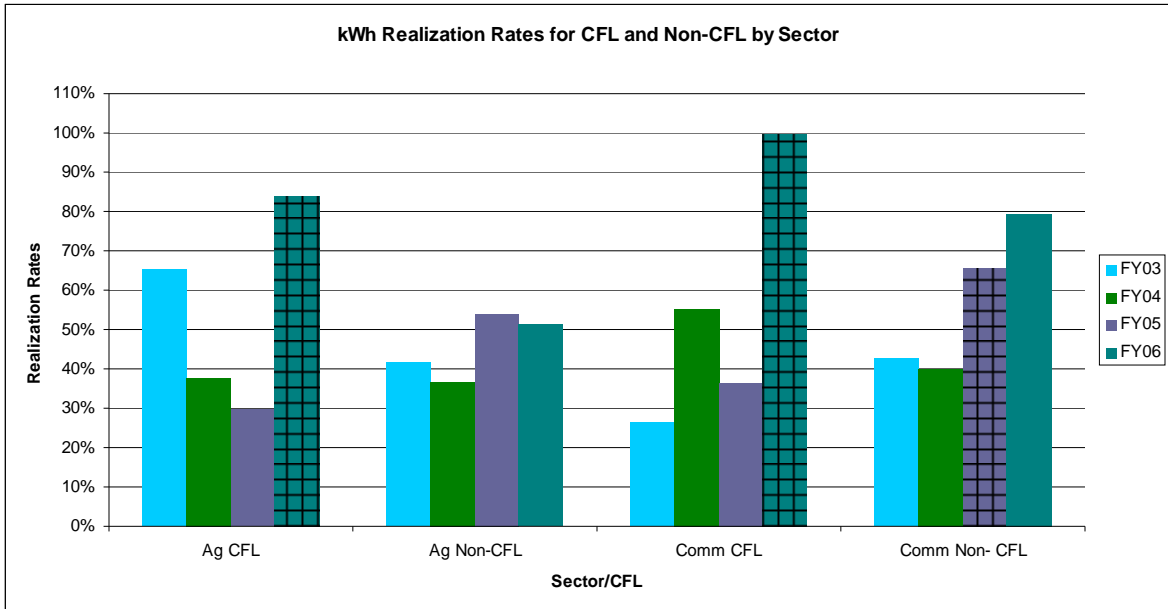
Table 5-11. Realization Rates by CFL/NON-CFL Based on Samples from Participants Who Installed a Measure during FY06

Segment	kWh			kW		
	Realization Rate	Standard Error ^a		Realization Rate	Standard Error ^a	
		Jul05-Jun06	Extrapolated		Jul05-Jun06	Extrapolated
Agriculture CFL	84%	5.1%	5.1%	84%	5.1%	5.1%
Agriculture non-CFL	51%	3.8%	4.3%	39%	4.4%	4.8%
Commercial CFL	100%	2.2%	2.3%	100%	2.2%	2.3%
Commercial non-CFL	79%	6.1%	6.6%	85%	4.5%	4.8%

^a The standard errors shown are conservative; they are calculated using an approximation that overstates the standard error.

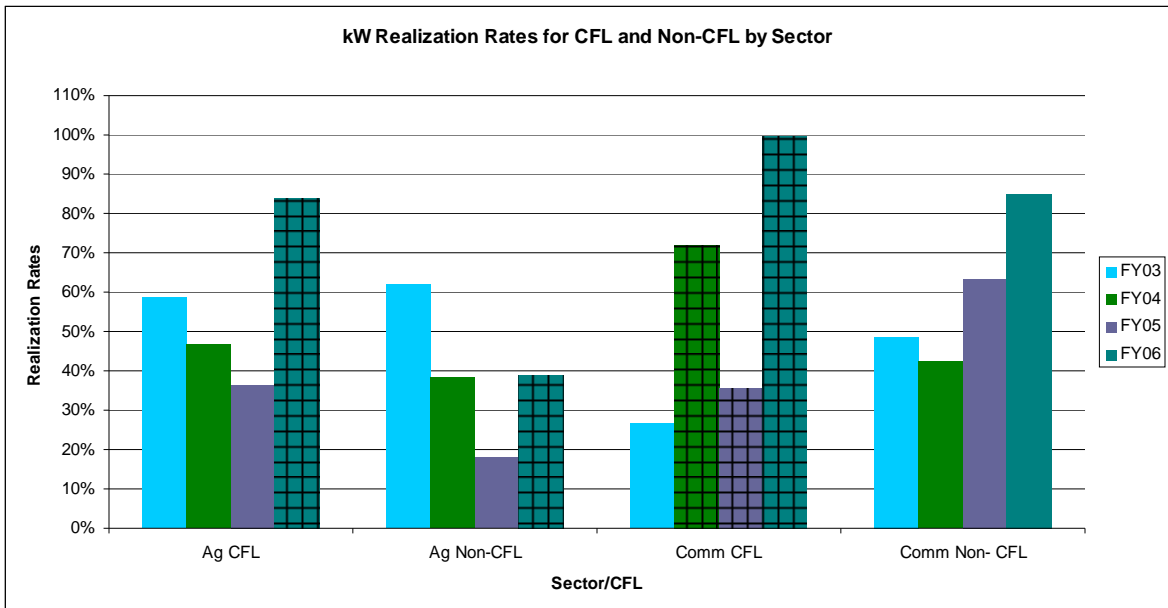
Figure 5-23 through Figure 5-24 show the realization rates by CFL/non-CFL overtime for kWh, kW, and Therms.

Figure 5-23. kWh Realization Rates by CFL/NON-CFL Comparison across Years^a



^a A cross-hatched bar in the charts indicates that the increase or decrease of the adjustment factor compared to the previous fiscal year's result is statistically significant at the 95 percent level of confidence.

Figure 5-24. kW Realization Rates by CFL/NON-CFL Comparison across Years^a



^a A cross-hatched bar in the charts indicates that the increase or decrease of the adjustment factor compared to the previous fiscal year's result is statistically significant at the 95 percent level of confidence.