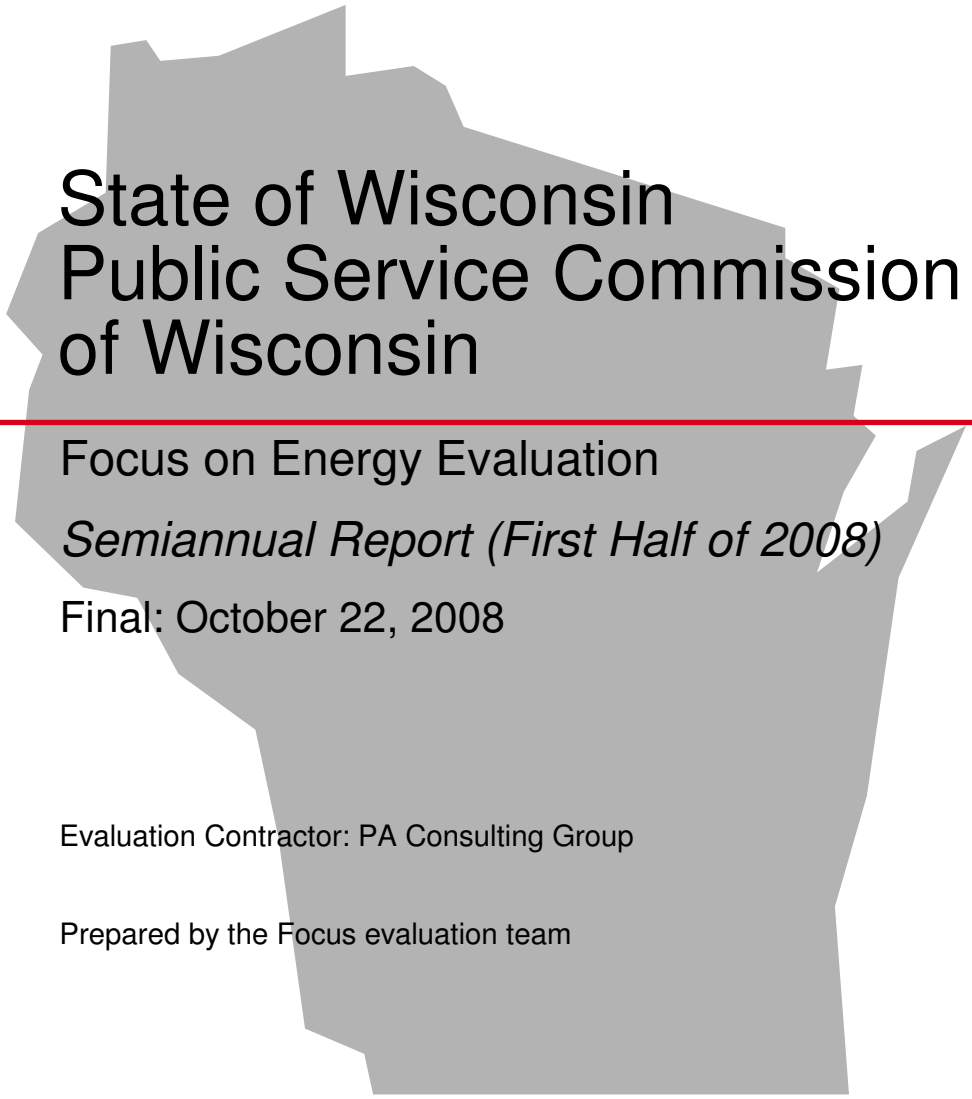
PA Consulting Group



State of Wisconsin Public Service Commission of Wisconsin

Focus on Energy Evaluation

Semiannual Report (First Half of 2008)

Final: October 22, 2008

Evaluation Contractor: PA Consulting Group

Prepared by the Focus evaluation team

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State of Wisconsin Public Service Commission of Wisconsin

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Semiannual Report (First Half of 2008)

Final: October 22, 2008

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1. INTRODUCTION

The purpose of this document is to present an overview of all Focus on Energy (Focus) impacts achieved for the previous twelve months and the program to date. Focus on Energy has had a number of impacts on the state of Wisconsin. The most important are energy impacts—the energy savings realized through the implementation of energy conservation measures. Other impacts that result from the program are: (1) environmental benefits (with emphasis on quantification of displaced generation emissions); (2) other non-energy benefits following from increased health, safety, and comfort; and (3) the economic benefits realized as a result of savings on energy bills, stimulation of economic development, and the creation of jobs. Another significant benefit provided by Focus on Energy, beyond the implementation of energy efficiency measures, is encouragement to various members of the marketplace—manufacturers, distributors, retailers, building contractors, trade allies, and consumers—to "raise the bar" for practices and standards related to energy efficiency technologies.

1.1 TRACKED ENERGY IMPACTS

The numbers in the tracked energy impacts tables presented in this report are annual energy savings—the energy saved by an installed conservation measure over 12 months. The annual energy impacts reported for a given time period, such as a six-months (e.g., this report covers the first twelve months of the 18-month contract period[1] (July 1, 2007–June 30, 2008) are the sum of the annual energy savings for all of the energy conservation measures installed in that period. See the introduction to *Section 2, Focus Impacts,* for additional explanation of the date references that will be used in this report as Focus transitions from a fiscal year basis to a calendar year basis.

The program administrators for Focus must maintain a *program tracking database* that includes all of the energy efficiency measures and actions taken within the program. The term "tracked" is used to signify that these savings result from program efforts directly counted (or tracked) by program administrators. This is the fundamental foundation for a program-based evaluation of energy impacts.

Notes on finalizing this *Semiannual Report*. There has been a longer interval between the draft version of this report and the final. This is attributable primarily to the following. First, there have been major changes in reporting of impacts (described below in this section and in Section 2). These have affected many summary tables and graphic representations of Focus savings—as well as the maps in Appendix A. An additional Appendix F provides an exhaustive guide to understanding how all report tables and figures are explicitly linked to the type of impact. Also, introductions to each of the Appendix A map subsections further explain the changes.

Second, some draft reports with key findings on CFLs have been finalized since the draft *Semiannual Report* was posted. In order to incorporate these results most tables and figures in this report have again been re-run to reflect the most current finalized evaluation findings.

[1] Because of the change from fiscal year to calendar year for Focus on Energy, the contract period was set to 18 months (July 1, 2007, through December 31, 2008). The next contract period will run from January 1 through December 31, 2009.

1.1.1 Reporting of Tracked Energy Impacts: Annual First Year vs. Lifecycle

Focus includes many long-term initiatives directed toward lasting changes in the state's energy-efficiency markets. As a result, any meaningful assessment of the benefits (and costs) of Focus must consider a multi-year timeframe. Thus, as in the formal benefit-cost analysis conducted for Focus, in order to appropriately value Focus energy impacts, the energy savings must be estimated as a *projected stream* based on the program-area evaluations.[2] These energy savings are counted as benefits over the measure lifetime, or the 25-year horizon of the benefit-cost analysis, whichever is shorter.

Table 1-1 below provides definitions for each of the various tracked savings impacts incorporated in the Focus impact evaluation system. **The types of reported impacts have been expanded for this Semiannual Report corresponding to three added impact types which are now included in Table 1-1 (definitions), and also shown in Table 1-2** (with Appendix E providing a complete listing of tables and figures in the report linked to the type of impacts reported).

These additional reported impact types are necessitated by the need to report more accurately what were previously referred to as "cumulative" savings (simple summing of annual first year savings), as well as to conform to the impacts as used in the benefit-cost. As the energy impacts of Focus are increasingly seen as resources in the state's long-term planning, these impacts must be as realistically reported as we can. While it is important to know the cumulative energy impacts from Focus on Energy, simply summing the savings is an oversimplification and can be misleading. For this reason we have taken the program-to-date (PTD) savings numbers out of the semiannual report, since they were previously compiled by a simple summing of annual first year savings.

Why is a "lifecycle" approach needed? The energy efficiency measures installed typically last for a number of years, so their lifetime energy impacts would be calculated by multiplying the annual energy savings by the number of years that the energy efficiency measure is expected to be in operation. These lifetime energy impacts—explicitly considering measure life interpreted as the median number of years of expected operation—are now termed in this report *lifecycle* energy impacts. An additional new concept embodied in the energy impacts presented in this Semiannual Report is *persistent* savings. These are lifecycle impacts that also include an exponential decay rate, such that half the savings remains after the measure life. (See additional discussion in *Section 2.1 and Section 2.8*.).

The term "tracked" is used to signify that these savings result from Focus efforts directly counted (or tracked) by program administrators. Table 1-1 below provides definitions for each of the various tracked savings impacts referred to throughout this report.

[2] Documentable energy savings, projected net verified savings based on documented impacts, are the foundation of Focus benefits included in the benefit-cost analysis (see *Interim Benefit-Cost Analysis: FY07 Evaluation Report*, February 26, 2007). In this analysis, the projected new implementation of energy efficient measures includes both direct effects (in-program) and projected market effects.

Table 1-1. Tracked Energy Impacts

Gross Reported Savings	Energy savings as reported by the program administrator, unverified by an independent evaluation (inputs to the evaluation impact analyses).
Verified Gross Savings	Energy savings verified by an independent evaluation based on reviews of the number and types of implemented improvements and the engineering calculations used to estimate the energy saved.
Verified Net Savings	Energy savings that can confidently be attributed to Focus efforts. Evaluators make adjustments for participants who were not influenced by Focus (Program Administrator contract performance targets currently use these savings).
Lifecycle Savings	Energy savings, expressed either as *verified gross* or *verified net*, that explicitly incorporate measure life (lifecycle verified gross savings are shown in the tables that accompany maps depicting the geographic distribution of Focus energy impacts—see Appendix A).
Persistent Savings	Energy savings, expressed as *verified net*, that are lifecycle impacts that also include an exponential decay rate, such that half the savings remains after the measure life (used in the Economic and Benefit-Cost analyses, and also reflected in the Appendix A maps).

Table 1-2, below, presents a matrix of the energy impact reporting types that shows the different types as a product of level of evaluation (gross reported, verified gross, and verified net) and how the duration of impacts is approached (first year, lifecycle, and persistent). The table also identifies the impact types that are included in this report, denoted as "Reported," and those that are "Not Reported."

Table 1-2. Tracked Energy Impacts and Approach to Impact Duration

	First Year	Lifecycle	Persistent
Gross	Reported	Not Reported	Not Reported
Verified Gross	Reported	Reported	Not Reported
Verified Net	Reported	Reported	Reported

Note: See Appendix F for a complete listing of tables and figures in the report linked to the type of impacts noted in this table as "Reported."

1.2 NONTRACKED ENERGY IMPACTS

For purposes of clarity, *nontracked energy savings* can be distinguished from *tracked energy savings* in that they are not directly counted (tracked) by program administrators. Nontracked energy savings are likely to consist of a combination of savings resulting from participant spillover (e.g., participants who, after an initial program experience, go on to adopt more energy saving products or practices without program assistance), market effects (e.g., changes in "marketplace" practices, services, and promotional efforts which induce businesses and consumers to buy energy saving products and services without direct program assistance), and unclaimed rewards (e.g., people who intend to submit the paperwork in order to claim Focus rewards but fail to do so). Nontracked energy savings are attributed to the program if it can be demonstrated that these impacts were the result of program initiatives or that program initiatives were at least a key driver.

Quantifying nontracked energy savings is important when program initiatives are designed to create impacts beyond what the program can capture in a tracking database. The savings can be, for example, a direct extension of steps toward verification of *net* energy savings via the gathering of data that document the effects of a program on a specific market. An example from Focus is the use of CFL sales tracking data to estimate changes in product market share that can be confidently attributed to the presence of a program explicitly seeking to influence the CFL market in a specific geography.

1.3 SUPPORTING INFORMATION

Because this document is an overview, significant amounts of supporting information are not provided here. This makes it incumbent on the reader to seek out supporting information if they would like to better understand specific aspects of this report. Supporting information can be found in the various reports listed in Table 1-3. An effort has been made to reference the appropriate evaluation reports in the relevant places throughout this report. The table below provides a list of all of the evaluation reports (and other deliverables) submitted during the first half of 2008.

Table 1-3. Focus Statewide Evaluation Reports and Other Deliverables
First Half of 2008 (January 1–June 30, 2008)

Program Area	Program	Document Title	Draft Report Date	Final Report Date
Administration	Administration	Current Research Efforts February 2008	18-Jan-08	18-Jan-08
Administration	Administration	Current Research Efforts March 2008	15-Feb-08	15-Feb-08
Administration	Administration	Current Research Efforts April 2008	21-Mar-08	21-Mar-08
Administration	Administration	Current Research Efforts May 2008	19-Apr-08	19-Apr-08
Administration	Administration	Current Research Efforts June 2008	16-May-08	16-May-08
Administration	Administration	Monthly Performance Report December 2007	21-Jan-08	21-Jan-08
Administration	Administration	Monthly Performance Report January 2008	18-Feb-08	18-Feb-08
Administration	Administration	Monthly Performance Report February 2008	18-Mar-08	18-Mar-08
Administration	Administration	Monthly Performance Report March 2008	21-Apr-08	21-Apr-08
Administration	Administration	Monthly Performance Report April 2008	16-May-08	16-May-08
Administration	Administration	Monthly Performance Report May 2008	15-Jun-08	15-Jun-08
Administration	Administration	Quarterly Performance Report, Oct – Dec 2007	28-Jan-08	28-Jan-08
Administration	Administration	Quarterly Performance Report, Jan - March 2008	28-Apr-08	28-Apr-08
Business Programs	Business Program – General	Abbreviated FY07 Business Programs Impact Evaluation	15-Jan-08	19-Feb-08
Cross-cutting	Crosscutting - General	Semiannual Report Second Half of 2007 Revised 12 July 08	02-Feb-08	12-Jul-08
Cross-cutting	Crosscutting - General	Summary Semiannual Report Second Half of 2007 Revised 12 July 08	02-Feb-08	12-Jul-08
Cross-cutting	Crosscutting - General	Framework for Net-to-Gross Attribution Questions	08-Feb-08	02-Jul-08
Cross-cutting	Crosscutting - General	Responses to Review Comments 2007 Second Half 17 Mar 08	17-Mar-08	17-Mar-08
Cross-cutting	Crosscutting - General	Integrating Supply-Side Research and End-User Self-Report Results	21-Mar-08	18-Apr-08
Cross-cutting	Crosscutting - General	Treatment of Accelerated Savings	25-Mar-08	22-Apr-08
Cross-cutting	Crosscutting - General	Emission Rate Estimates 2002 through 2006 - Draft	27-Jun-08	
Renewables	Renewables	Renewable Energy-Standard Calculation Recommendations	20-Jun-08	12-Sep-08
Residential	Apartment and Condo Efficiency Services	ACES Default Deemed Savings Review - final	26-May-08	24-Jun-08
Residential	Apartment and Condo Efficiency Services	ACES Participant Survey Draft, Flowchart, and Algorithm	11-Jun-08	3-Sep-08
Residential	Residential - General	FY07 Contract Metrics Measurement	21-Dec-07	21-Jan-08
Residential	Residential Lighting	Compact Fluorescent Lighting Installation Rate Study	28-Nov-07	08-Jan-08
Residential	Residential Lighting	Analysis of Delta Watts Values for CFLs Rewarded through the Residential Lighting Program in FY07	12-Dec-07	06-Mar-08

2. FOCUS IMPACTS

This chapter describes various Focus estimated impacts and associated evaluation analyses.

- Tracked energy impacts
- Nontracked energy impacts
- Market effects
- Economic impacts
- Environmental impacts
- Non-energy benefits
- Benefit-cost analysis.

Data for the energy impacts tables throughout this report are derived from data downloaded from WECC's tracking databases on July 14, 2008.

With the transition of the Focus programs from WDOA to the PSCW, and recognizing the PSCW's desire for a calendar year basis for program and evaluation reporting, this report adopts the following conventions for referencing time periods. References to time periods covered during the analysis will be "the last half of 2007," "the first half of 2008," or "the 18-month contract period" depending on what is being discussed. Tables will be labeled as shown below.

Table 2-1. Example of Date References Used in this Report

FY02 Mar 02–June 02	FY03 Jul 02–Jun 03	FY04 Jul 03–Jun 04	FY05 Jul 04–Jun 05	FY06 Jul 05–Jun 06	FY07 Jul 06–Jun 07	First 12 months of the 18-month Contract Period (July 1, 2007–June 30, 2008)	Program To Date

2.1 VERIFIED TRACKED ENERGY IMPACTS

2.1.1 New energy impact reporting types

To continue a discussion introduced in Section 1, previous versions of the Semiannual Reports have shown cumulative savings, simply summing up the savings from each fiscal year. While it is important to know the cumulative energy impacts from Focus on Energy, simply summing the savings is an oversimplification and can be misleading. Also, this year's Program Administrator goals are now based on verified *net* energy impacts, where previously they were based on verified *gross* impacts. This report is also changing the basis of other reported impacts to verified net instead of verified gross (e.g., the displaced emissions and energy savings equivalencies).

In addition, Focus is now in its eighth year of operation and some measures installed in the first years of the program have reached the end of their useful life. Compact fluorescent lights (CFLs), a significant measure for the Residential and Business programs, have an estimated useful life of six years. Therefore, many of the CFLs installed in 2001 are no longer operating and saving energy—adding to potential confusion concerning cumulative savings.

There are also other factors that result in measures no longer remaining in operation. For example, people move out of Wisconsin and take the CFLs with them or they do not last as long as expected. Because of this, we have taken the program-to-date (PTD) savings numbers out of the Semiannual Report.

There are, however, figures in this section that show the stream of net energy impacts over 20 years of all of the measures installed through June 2008. These are termed *lifecycle verified gross* impacts (Figures 2-1 through 2-3 for energy, demand, and gas savings respectively), and *persistent verified net* (Figures 2-4 through 2-6, again corresponding to energy, demand, and gas savings). As of June 2008, the persistent verified net energy savings from all measures installed since Focus began in July 2001 that are still in operation is over 879 GWh, 152 MW of demand reductions, and 41.0 million therms (see Figure 2-4 Persistent Net Electricity Savings, Figure 2-5 Persistent Net Electricity Demand Reductions, and Figure 2-6 Persistent Net Therm Savings, which graph Focus net savings from fiscal year 2002 through fiscal year 2026.

Applying an exponential decay rate to report persistent verified net. The energy savings impacts for each year are the total impacts of all measures implemented as a result of the program up through that year. Thus, the documentable energy savings for Year 1 would be the annual energy savings due to measures implemented through the programs and attributable to them (first-year net savings). The documentable savings shown for Year 10 are the net (i.e. program-attributable) annual energy savings due to all measures implemented through the program in Years 1 through 10 *and persisting until Year 10*.

The development of the stream of energy savings impacts involves discounting according to an assumed discount rate, or decay curve, to account for measure persistence over a theoretical measure life. This decay curve is an exponential decay, with median measure lifetime equal to the savings-weighted average measure life for each program area (calculated at the level of major end-uses for each program area—see Section 2.8 for further discussion). Thus, the savings implemented in each program year are extended into the future, using the exponential decay rate, such that half the savings remains after the measure life.[3]

With this interpretation and an assumed exponential decay, the fraction f of savings that survives from one year to the next is given by

$$f = 2^{-(1/L)}$$

where L is the measure life. For example, if the measure life is 15 years, the surviving fraction each year is

$$f = 2^{-1/15} = 95.5\%.$$

The decay rate is

[3] That is, we interpret the measure life as the time until half the units would be expected to have failed or been removed. This interpretation is consistent with the persistence study framework used in California and elsewhere. Under those rules, the "expected useful life" is the median survival time, where "surviving" means remaining in place and operable.

d = 1-f = 4.5%.

Thus, in this example, the surviving savings from the prior year is calculated as 95.5% of the prior year's amount; 4.5% of the prior year's savings is lost.

Future considerations. Another factor that can have a significant impact on the stream of energy savings from installed measures occurs when Focus on Energy is successful in getting participants to purchase energy efficient equipment before their existing inefficient equipment fails. This results in a higher energy savings in the early years of the equipment life which then drops to a lower level of savings at the time that the equipment was expected to have failed or been replaced (had there been no program intervention). Both first-year savings tables (for each fiscal year) and the stream of energy savings that is shown in this section do not presently account for this. However, the evaluation team has developed a "white-paper" that discusses this issue and presents possible methods for addressing it. After receiving review comments from interested stakeholders (including WECC), this paper has been submitted to the PSCW for their review, and a policy decision will be made on the most appropriate method to be adopted for estimating the flow of accelerated savings in the future.

2.1.2 Energy impacts summaries

One of the routine tasks in preparing the evaluation *Semiannual Reports* is to reconcile the program gross energy impacts reported in WECC's Monthly Performance Reports with the summary of the detailed data downloaded from the tracking system(s). This is the first time that this process has been done with data from the new tracking system (the Wisconsin Energy Efficiency and Renewables Tracking System or WISeerts) for the Focus Business program developed by the Public Service Commission of Wisconsin (PSCW). This system replaces the Wisconsin Activity and Technology Tracking System (WATTS) developed by WECC.

One component of the Business Programs gross savings that WISeerts does not track is the ENERGY STAR rebate measures, which is still maintained at WECC. Previously, the ENERGY STAR rebate data was summarized in the WATTS system, so this also the first time that detailed data from the ENERGY STAR rebate database has been imported from WECC's database and included in the evaluation database used for this *Semiannual Report*. Therefore, the differences in the gross BP numbers between WECC's June 2008 monthly report and the gross impacts reported in this report are greater than they have been historically. However, they are within two to three percent. We have had several discussions with staff at WECC to understand their processes for integrating these three separate data sources for reporting, but we will need to continue to work with WECC to identify and minimize these discrepancies.

Table 2-1a presents a summary by program area of the annual kWh, kW, and therm impacts with dollar values along with number of participants. It is important to note that these are *lifecycle verified gross* impacts. Thus, they reflect a stream of savings that incorporates measure life assumptions.

Table 2-1b also shows the same summary as Table 2-1a, but the values are *first year* annual impacts for verified gross—not *lifecycle.* They are also broken out by the Business, Residential, and Renewable Energy Program areas for energy efficiency measures implemented from July 1, 2001, through June 30, 2008, as documented in their respective tracking systems (Tracked Energy Impacts).

Table 2-1a. All Programs: Tracked Energy Impacts—Lifecycle Verified Gross (July 1, 2001—June 30, 2008)

Program Area	Annual Verified kWh Saved	Annual Verified kW Saved	Annual Verified Therms Saved	Annual Dollar Value of Energy Saved	Number of Participants
Total Saved	**1,453,364,012**	**252,072**	**70,499,355**	**$193,790,385**	
Business	897,016,054	176,765	56,272,460	$120,852,422	10,851
Residential	506,149,203	66,291	10,450,240	$64,903,190	129,458
Renewables	50,198,755	9,016	3,776,655	$8,034,773	242

Note: The numbers in this table are *lifecycle verified gross* impacts. Thus, they reflect a stream of savings that incorporates measure life assumptions.

Table 2-1b. All Programs: Tracked Energy Impacts—Annual First Year Verified Gross (July 1, 2001–June 30, 2008)

	Annual kWh Saved	Annual kW Saved	Annual Therms Saved	Annual Dollar Value of Energy Saved	Number of Participants
First 12 months of the 18-month Contract Period (July 1, 2007–June 30, 2008)					
Total Saved	**314,451,060**	**53,563**	**10,048,520**	**$36,318,589**	
Business	207,724,261	43,437	7,682,738	$22,565,578	12,067
Residential	104,203,187	8,941	1,885,979	$13,054,243	123,356
Renewables	2,523,610	1,184	479,802	$698,767	228
FY07 (July 1, 2006–June 30, 2007)					
Total Saved	**238,186,182**	**40,994**	**13,610,895**	**$33,808,319**	
Business	151,010,729	32,269	11,513,742	$22,558,415	12,820
Residential	78,656,906	6,855	1,423,677	$9,853,958	214,813
Renewables	8,518,546	1,870	673,474	$1,395,945	117
FY06 (July 1, 2005–June 30, 2006)					
Total Saved	**218,772,858**	**41,438**	**13,058,006**	**$32,152,854**	
Business	131,761,262	28,280	9,418,597	$19,432,881	13,023
Residential	73,967,204	11,283	1,573,307	$9,538,243	226,963
Renewables	13,044,391	1,874	2,066,101	$3,181,729	92
FY05 (July 1, 2004–June 30, 2005)					
Total Saved	**214,904,745**	**35,902**	**9,174,854**	**$27,774,000**	
Business	110,718,465	20,901	7,105,271	$15,002,791	13,261
Residential	82,277,879	11,739	1,726,139	$10,582,178	207,744
Renewables	21,908,400	3,262	343,443	$2,189,030	65
FY04 (July 1, 2003–June 30, 2004)					
Total Saved	**228,325,940**	**37,688**	**14,469,317**	**$33,858,496**	
Business	137,364,603	23,540	12,615,132	$22,264,078	1,563
Residential	90,477,383	13,927	1,640,351	$11,337,958	212,853
Renewables	483,953	220	213,833	$256,458	52
FY03 (July 1, 2002–June 30, 2003)					
Total Saved	**221,731,361**	**35,807**	**8,104,103**	**$27,053,573**	
Business	128,323,628	21,382	6,196,248	$15,175,084	1,530
Residential	89,687,880	13,820	1,907,854	$11,565,649	156,468
Renewables	3,719,852	604	0	$312,839	31

FY02 (July 1, 2001–June 30, 2002)					
Total Saved	**56,484,523**	**11,704**	**2,652,791**	**$7,651,808**	
Business	30,532,158	7,036	1,740,728	$3,887,896	1,164
Residential	25,952,364	4,668	912,062	$3,763,912	55,886

Note: The numbers in this table *are annual first year savings* —not *lifecycle.* Also, the numbers in this table are the verified gross savings.

Table 2-1c again provides the *lifecycle* approach to estimating energy impacts, and also shows by program area the *lifecycle verified gross, lifecycle verified net,* and the net-to-gross percentages used to derive verified net from verified gross. Table 2-1d corresponds to Table 2-1b by presenting *first year* (not *lifecycle*) summary results. For Table 2-1d the gross, verified gross, and verified net energy impacts are shown by fiscal year and program area.

Table 2-1c. All Programs: Tracked Energy Impacts - Lifecycle Verified Gross and Lifecycle Verified Net (July 1, 2001–June 30, 2008)

	Annual kWh Saved			kW Reduction			Annual Therms Saved		
	Verified Gross	**Verified Net**	**NTG**	**Verified Gross**	**Verified Net**	**NTG**	**Verified Gross**	**Verified Net**	**NTG**
Total Saved	**1,453,364,012**	**1,035,242,022**	**71%**	**252,072**	**174,516**	**69%**	**70,499,355**	**45,699,575**	**65%**
Business	897,016,054	540,667,535	60%	176,765	107,990	61%	56,272,460	34,226,117	61%
Residential	506,149,203	483,973,204	96%	66,291	63,911	96%	10,450,240	10,183,574	97%
Renewables	50,198,755	10,601,283	21%	9,016	2,615	29%	3,776,655	1,289,884	34%

Note: the numbers in this table are lifecycle verified gross and lifecycle verified net.

Table 2-1d. All Programs: Tracked Energy Impacts - Annual First Year Program to Date (July 1, 2001–June 30, 2008)

	Annual kWh Saved			kW Reduction			Annual Therms Saved		
	Gross	Verified Gross	Verified Net	Gross	Verified Gross	Verified Net	Gross	Verified Gross	Verified Net
First 12 months of the 18-month Contract Period (July 1, 2007–June 30, 2008)									
Total Saved	**321,694,305**	**314,451,060**	**222,939,249**	**54,890**	**53,563**	**37,182**	**11,577,729**	**10,048,520**	**6,641,558**
Business	214,723,465	207,724,261	133,768,751	44,890	43,437	29,143	9,117,204	7,682,738	4,542,655
Residential	104,342,079	104,203,187	89,046,946	9,025	8,941	7,816	1,969,930	1,885,979	1,873,228
Renewables	2,628,761	2,523,610	123,551	974	1,184	222	490,595	479,802	225,673
FY07 (July 1, 2006–June 30, 2007)									
Total Saved	**260,253,744**	**238,186,182**	**162,837,106**	**43,883**	**40,994**	**27,968**	**15,914,412**	**13,610,895**	**8,455,238**
Business	157,129,610	151,010,729	98,453,945	33,446	32,269	21,765	13,658,923	11,513,742	6,809,760
Residential	94,250,648	78,656,906	63,966,106	8,898	6,855	5,852	1,566,863	1,423,677	1,328,711
Renewables	8,873,485	8,518,546	417,053	1,538	1,870	350	688,624	673,474	316,767
FY06 (July 1, 2005–June 30, 2006)									
Total Saved	**234,759,711**	**218,772,858**	**166,046,080**	**44,305**	**41,438**	**30,470**	**13,622,492**	**13,058,006**	**6,315,401**
Business	131,817,040	131,761,262	91,617,024	28,338	28,280	19,021	9,674,444	9,418,597	4,365,773
Residential	90,191,555	73,967,204	72,082,851	14,050	11,283	11,064	1,858,966	1,573,307	1,490,029
Renewables	12,751,116	13,044,391	2,346,205	1,916	1,874	385	2,089,081	2,066,101	459,597
FY05 (July 1, 2004–June 30, 2005)									
Total Saved	**276,026,124**	**214,904,745**	**152,938,452**	**41,080**	**35,902**	**22,841**	**9,615,995**	**9,174,854**	**5,232,800**
Business	143,707,711	110,718,465	55,861,214	27,076	20,901	9,969	7,044,228	7,105,271	3,463,641
Residential	112,947,590	82,277,879	92,815,656	11,011	11,739	11,887	2,124,575	1,726,139	1,681,062
Renewables	19,370,823	21,908,400	4,261,581	2,992	3,262	984	447,191	343,443	88,096
FY04 (July 1, 2003–June 30, 2004)									
Total Saved	**282,842,829**	**228,325,940**	**168,977,072**	**44,681**	**37,688**	**26,980**	**13,558,722**	**14,469,317**	**12,438,387**
Business	156,470,715	137,364,603	79,935,443	28,604	23,540	13,185	11,642,146	12,615,132	10,615,983
Residential	125,874,219	90,477,383	88,592,528	15,878	13,927	13,599	1,825,116	1,640,351	1,622,654
Renewables	497,895	483,953	449,101	199	220	194	91,460	213,833	199,748
FY03 (July 1, 2002–June 30, 2003)									
Total Saved	**230,892,402**	**221,731,361**	**145,667,606**	**38,174**	**35,807**	**23,244**	**7,953,518**	**8,104,103**	**5,541,766**
Business	129,814,716	128,323,628	62,483,249	23,350	21,382	10,550	6,258,454	6,196,248	3,642,577
Residential	97,405,571	89,687,880	80,180,567	14,098	13,820	12,216	1,695,064	1,907,854	1,899,189
Renewables	3,672,115	3,719,852	3,003,790	725	604	478	0	0	0
FY02 (July 1, 2001–June 30, 2002)									
Total Saved	**54,507,967**	**56,484,523**	**39,048,722**	**10,934**	**11,704**	**8,162**	**3,673,295**	**2,652,791**	**1,616,167**
Business	30,559,935	30,532,158	18,764,493	6,965	7,036	4,396	2,760,541	1,740,728	785,725
Residential	23,948,032	25,952,364	20,284,229	3,969	4,668	3,765	912,754	912,062	830,442

Note: The numbers in this table are *annual first year* (not *lifecycle).*

As cited above, the following Figures 2-1, 2-2, and 2-3 reflect the *lifecycle verified gross* stream of energy savings over time from program inception in fiscal year 2002 for twenty-four years, through calendar year 2021. These graphs are based on the verified gross savings shown in Table 2-1c, above. The savings implemented each fiscal year continues over the effective useful life of the measures installed to realize the savings. The charts show that the lifecycle savings peak at about 1500 GWh and 70 million therms in the first half of 2008 (the current period) and then begin to decline since it only reflects those measures that have been installed through June 2008. The electricity savings for the residential programs decline more

rapidly that the electricity savings for the business programs because CFLs make up a significant proportion of the residential programs electricity savings and CFLs have an expected measure life of six years. While, the T8/T5 fluorescent lighting measures that account for approximately 24 percent of the business programs savings (see Figure 2-7) have an expected measure life of fifteen years. There are measures for both programs that have expected measure lives of more than fifteen years.

Figures 2-4 through 2-6, below, again present energy, demand, and gas savings through 2021, but incorporate the decay factor and verified net—and are thus the *persistent verified net savings*).

The measure life is interpreted as the median measure life. Measure lives for all program measures included in this analysis are provided in Appendix C. The savings implemented in each program year are extended into the future with an exponential decay rate, such that half the savings remains after the measure life.

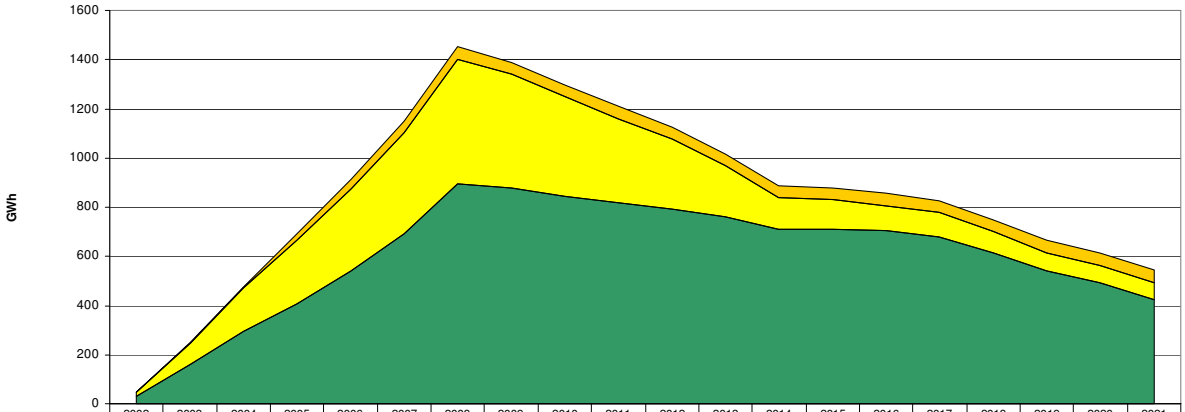
That is, we interpret the measure life identified from the literature as the time until half the units would be expected to have failed or been removed. This interpretation is consistent with the persistence study framework used in California and elsewhere. Under those rules, the "expected useful life" is the median survival time, where "surviving" means remaining in place and operable. (See section 2.8 for additional discussion of these computations.)

Additional explanation of the cumulative stream of demand reduction impacts for Focus on Energy will also aid in interpretation of Figure 2-2 and Figure 2-5. In particular, guidance for calculating demand impacts for Focus can be found in the Focus Business Programs Operations Manual (page 57). It specifies that the demand (kW) impacts for Focus measures should be calculated for non-weather dependent equipment based on the "average kW savings over the period from 1:00 pm to 4:00 pm, Monday through Friday, during the months of June through August. Average kW is the kWh savings realized over the three hour peak period (1:00 pm to 4:00 pm), divided by these same three hours per day for weather dependent measures, such as air conditioning they will be calculated based on state-wide average design-day conditions as defined by the latest version of ASHRAE Fundamentals."

The manual provides further guidance in the calculation of demand impacts, and this guidance has evolved over the life of the Focus program. The current level of specificity was especially important in this fiscal year (FY08) since in many cases the incentives paid to participants explicitly consider the demand impacts of equipment.

The changes over time in the guidance regarding the calculation of demand impacts for Focus measures means that cumulative demand impacts across program years (reflected in Figure 2-2 and Figure 2-5) are not based on exactly the same definition (since changes in the calculation guidance are not applied retroactively).

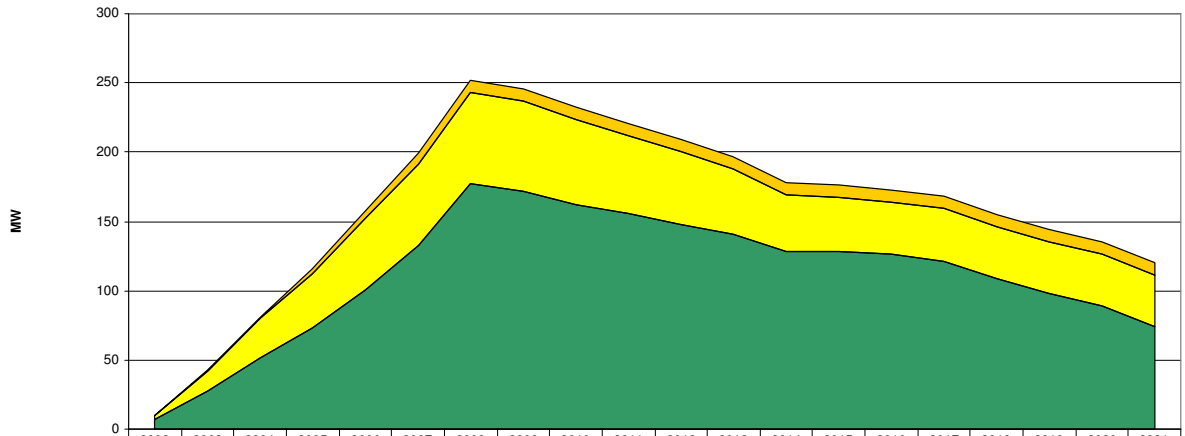
Figure 2-1. Lifecycle Verified Gross Electricity Savings (GWh)



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Renew ables	0	4	4	26	39	48	50	50	50	50	50	50	50	50	50	50	50	50	50	50
Residential	17	89	176	259	333	411	506	462	405	342	284	209	127	121	102	96	87	77	70	70
Business	31	159	296	407	539	690	897	877	844	818	792	759	710	708	704	681	613	539	492	424
Total	48	252	476	692	911	1149	1453	1389	1299	1210	1126	1018	887	879	856	827	750	666	612	544

Fiscal Year

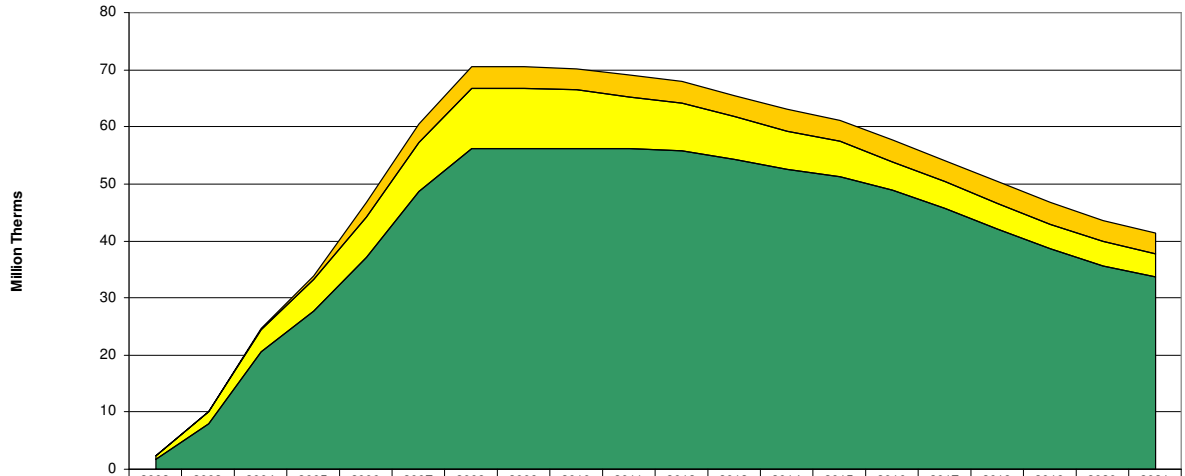
Figure 2-2. Lifecycle Verified Gross Electricity Demand Reductions (MW)



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Renew ables	0	1	1	4	6	8	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Residential	3	14	28	39	51	58	66	65	61	56	52	47	41	39	38	38	37	37	37	37
Business	7	28	52	73	101	133	177	172	162	156	148	141	128	128	126	121	109	98	89	74
Total	10	43	81	116	158	199	252	246	232	221	209	197	178	176	173	168	155	144	135	120

Fiscal Year

Figure 2-3. Lifecycle Verified Gross Gas Savings (Million Therms)

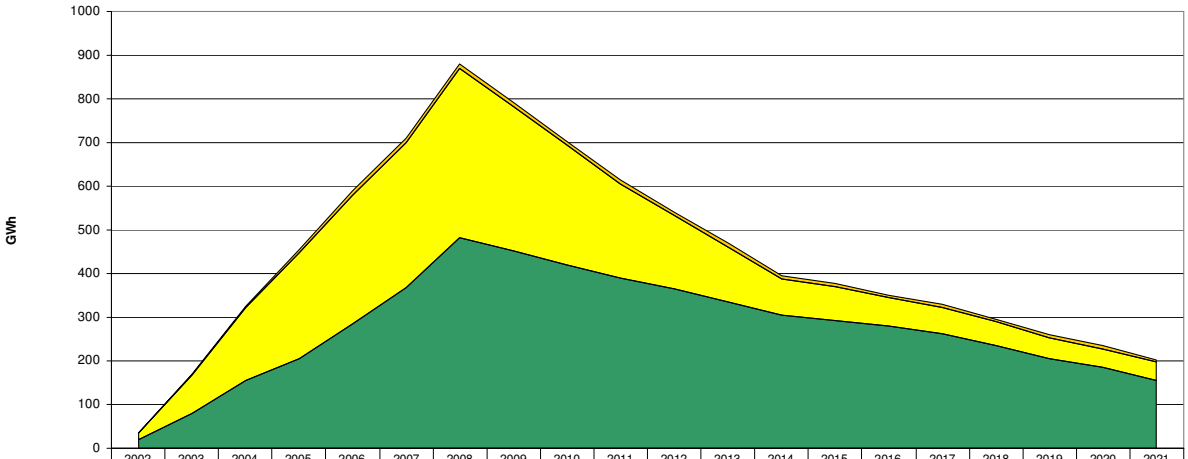


	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Renew ables	0	0	0.2	0.6	2.6	3.3	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
Residential	0.6	2.2	3.8	5.6	7.1	8.6	10.5	10.5	10.1	9	8.4	7.5	6.8	6.2	4.8	4.6	4.5	4.3	4.1	4.1
Business	1.7	7.9	20.6	27.7	37.1	48.6	56.3	56.3	56.3	56.3	55.7	54.2	52.5	51.2	49	45.7	42.1	38.6	35.7	33.6
Total	2.3	10.1	24.6	33.9	46.8	60.5	70.6	70.6	70.2	69.1	67.9	65.5	63.1	61.2	57.6	54.1	50.4	46.7	43.6	41.5

Fiscal Year

Figures 2-4, 2-5, and 2-6 reflect the stream of *persistent verified net* savings—thus applying a decay factor to the lifecycle savings—and indicate that the savings stream peaks at about 834 GWh and 41.0 million therms in the first half of 2008 (the current period). It also declines, again because it only reflects those measures that have been installed through June 2008.

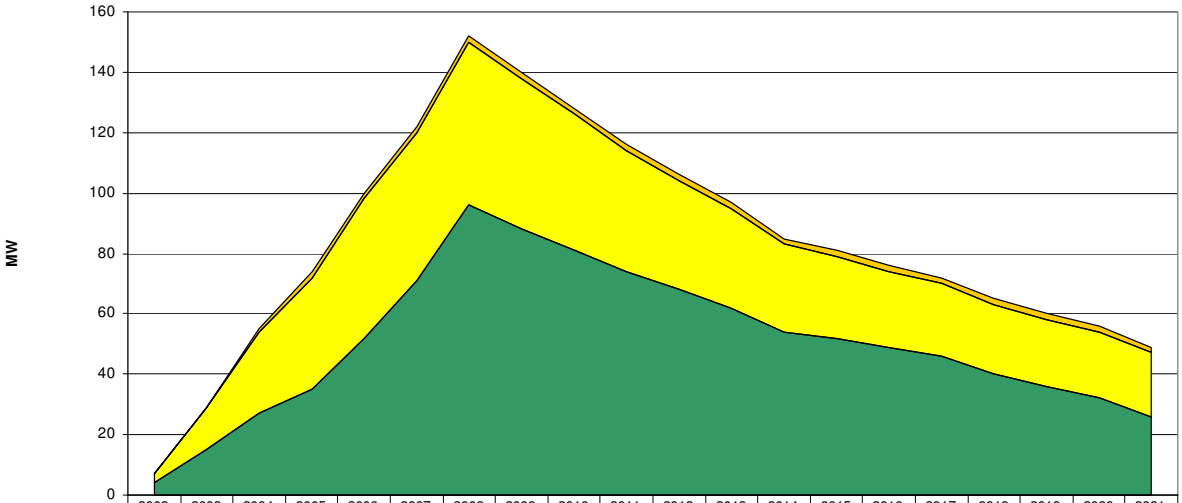
Figure 2-4. Persistent Verified Net Electricity Savings (GWh)



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Renew ables	0	3	3	8	10	10	10	9	9	9	8	8	8	8	7	7	7	7	6	6
Residential	16	87	166	244	294	332	387	331	274	214	168	125	84	77	65	60	54	48	43	41
Business	19	81	156	204	285	368	482	452	420	391	364	336	304	292	279	262	235	204	185	156
Total	35	171	325	456	589	710	879	792	703	614	540	469	396	377	351	329	296	259	234	203

Fiscal Year

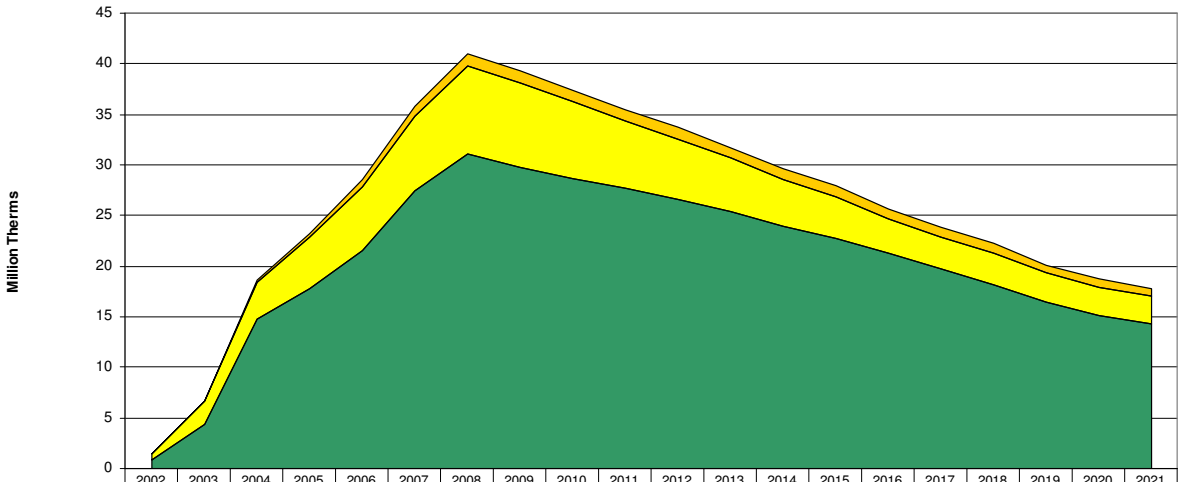
Figure 2-5. Persistent Verified Net Electricity Demand Reductions (MW)



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Renew ables	0	0	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Residential	3	14	27	37	46	49	54	50	45	40	36	33	29	27	25	24	23	22	22	21
Business	4	15	27	35	52	71	96	88	81	74	68	62	54	52	49	46	40	36	32	26
Total	7	29	55	74	100	122	152	140	128	116	106	97	85	81	76	72	65	60	56	49

Fiscal Year

Figure 2-6. Persistent Verified Net Gas Savings (Million Therms)



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Renew ables	0	0	0.2	0.3	0.7	1	1.2	1.2	1.1	1.1	1.1	1	1	1	0.9	0.9	0.9	0.8	0.8	0.8
Residential	0.6	2.2	3.6	5.1	6.3	7.3	8.7	8.3	7.6	6.7	6	5.3	4.7	4.2	3.4	3.2	3.1	2.9	2.8	2.7
Business	0.8	4.4	14.8	17.8	21.5	27.5	31.1	29.8	28.7	27.7	26.6	25.4	23.9	22.7	21.3	19.7	18.2	16.4	15.1	14.3
Total	1.4	6.6	18.6	23.2	28.5	35.8	41	39.3	37.4	35.5	33.7	31.7	29.6	27.9	25.6	23.8	22.2	20.1	18.7	17.8

Fiscal Year

Figure 2-7. Electric Energy Impacts by Measure Category
Business Programs
Program to Date (July 1, 2001–June 30, 2008)

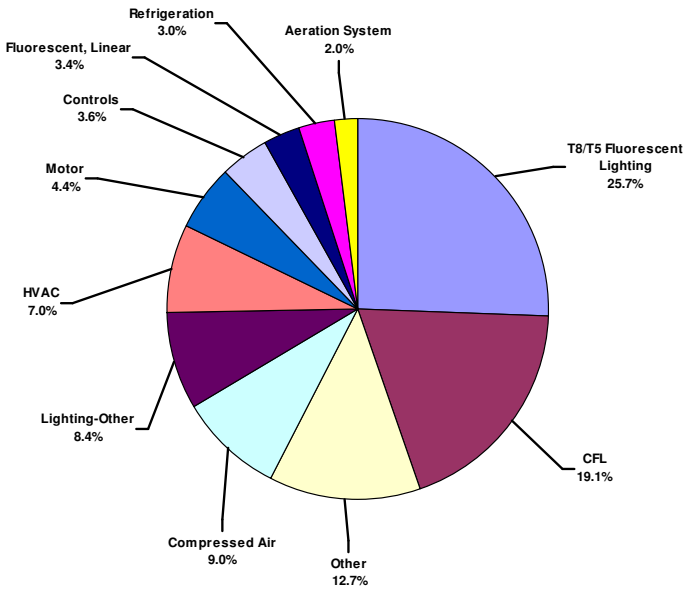


Figure 2-8. Gas Energy Impacts by Measure Category
Business Programs
Program to Date (July 1, 2001–June 30, 2008)

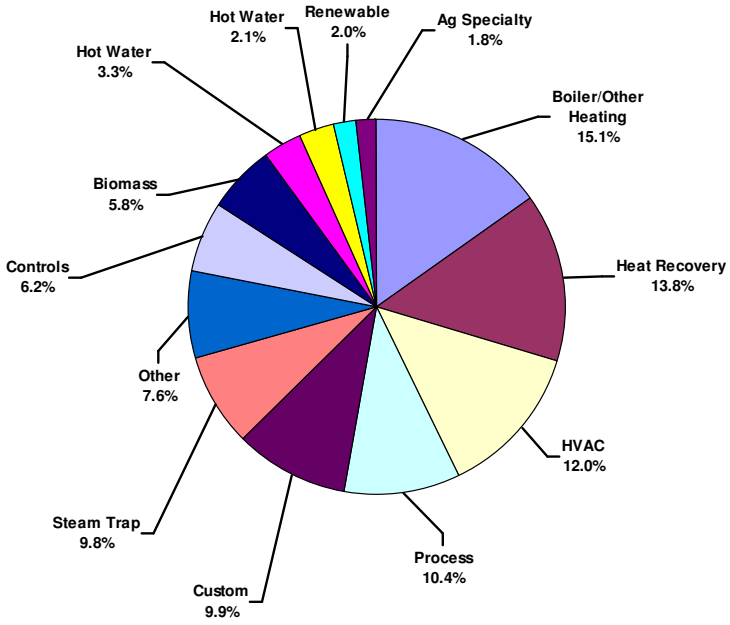


Table 2-2. Electric Energy Impacts by Measure Category, Business Programs
Program to Date (July 1, 2001–June 30, 2008)

Measure Category	Verified Gross kWh	Percent of Total
T8/T5 Fluorescent Lighting	232,945,970	26.0%
CFL	173,470,384	19.3%
Other	114,792,097	12.8%
Compressor	80,993,509	9.0%
Lighting-Other	75,974,259	8.5%
HVAC	69,150,028	7.7%
Motors & Drives	48,663,323	5.4%
Controls	38,575,463	4.3%
Custom	27,525,436	3.1%
Refrigeration	26,863,060	3.0%
Aeration System	18,463,497	2.1%

Table 2-3. Gas Energy Impacts by Measure Category, Business Programs
Program to Date (July 1, 2001–June 30, 2008)

Measure Category	Verified Gross Therms	Percent of Total
Boiler/Other Heating	8,694,727	15.5%
Energy Recovery	8,301,369	14.8%
HVAC	7,414,145	13.2%
Process	5,610,971	10.0%
Steam Trap	5,609,210	10.0%
Custom	4,523,067	8.0%
Other	4,355,869	7.7%
Controls	3,505,244	6.2%
Biomass	3,277,426	5.8%
Hot Water	1,879,765	3.3%
Building Shell	1,751,021	3.1%
Renewable	1,060,113	1.9%
Ag Specialty	1,009,861	1.8%

Figure 2-9. Electric Energy Impacts by Measure Category, Residential Programs
Program to Date (July 1, 2001–June 30, 2008)

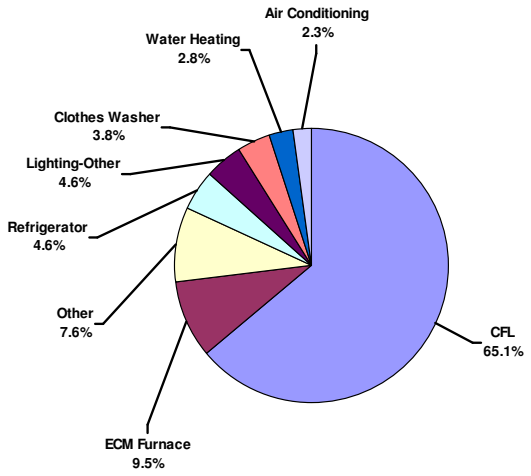


Figure 2-10. Gas Energy Impacts by Measure Category, Residential Programs
Program to Date (July 1, 2001–June 30, 2008)

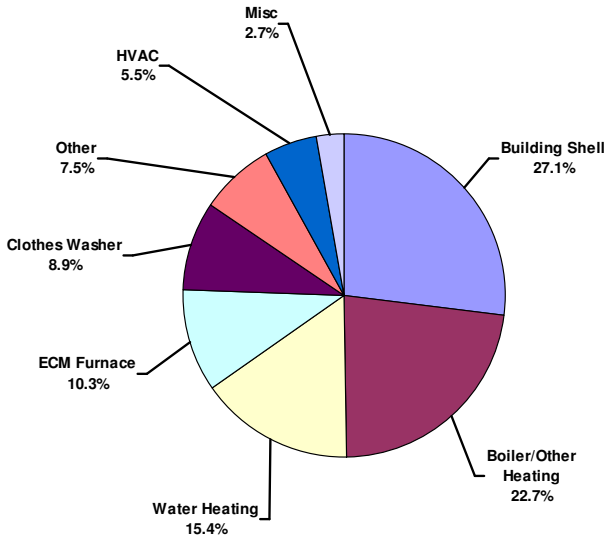


Table 2-4. Electric Energy Impacts by Measure Category - Residential Programs
Program to Date (July 1, 2001–June 30, 2008)

Measure Category	Verified Gross kWh	Percent of Total
CFL	350,066,254	64.2%
ECM Furnace	49,792,502	9.1%
Other	49,019,336	9.0%
Refrigerator	25,009,072	4.6%
Lighting-Other	24,923,371	4.6%
Clothes Washer	20,546,872	3.8%
Water Heating	15,179,785	2.8%
Air Conditioning	12,616,750	2.3%

Table 2-5. Gas Energy Impacts by Measure Category - Residential Programs
Program to Date (July 1, 2001–June 30, 2008)

Measure Category	Verified Gross Therms	Percent of Total
Building Shell	2,995,281	27.1%
Boiler/Other Heating	2,515,774	22.7%
Water Heating	1,699,431	15.4%
ECM Furnace	1,140,906	10.3%
Clothes Washer	986,574	8.9%
Other	827,196	7.5%
HVAC	609,070	5.5%
Misc	295,138	2.7%

The figures above (Figures 2-7 through 2-10) summarize the distribution of energy impacts by measure category and fuel type for Business Programs and Residential program areas. The accompanying tables present corresponding verified gross impact values.

2.2 VERIFIED NONTRACKED ENERGY IMPACTS

As the Focus program progresses, the evaluation team also seeks to quantify energy savings attributable to the Focus effort that are not directly "tracked" by program administrators. For example; participants who, after an initial program experience, go on to adopt more energy saving products or practices without program assistance (often referred to as "spillover"), changes in marketplace practices, services, and promotional efforts which induce businesses and consumers to buy energy saving products and services without direct program assistance (often referred to as "market effects"), and unclaimed rewards—people who intend to submit the paperwork in order to claim rewards but fail to do so.

Presently, the majority of the "nontracked" energy savings quantified as attributable to Focus on Energy are related to the ENERGY STAR® Products program compact fluorescent light bulb (CFL) initiative in the residential and business sector (in the business sector the program is referred to as CFL Participants). Also, spillover savings have been quantified for the rest of the business sector participants, referred to in the table as "Non-CFL Participants."

In the business sector, the results for the "CFL participants—through June 30, 2006" are presented as a range. The report providing these estimates characterized the lower estimate as a "robust" estimate at about 1.1 million annual kWh saved and 298 annual kW reduction and the higher estimate as a "basic" estimate of about 16.2 million annual kWh saved and over 4,600 annual kW reduction.

Table 2-6. Nontracked Energy Impacts

Program Area (Sector)	Program		Annual kWh Saved	kW Reduction	Annual Therms Saved
Residential	ENERGY STAR Products - CFLs FY02		14,964,840	453	0
Residential	ENERGY STAR Products - CFLs FY02		2,302,014	70	0
Business	CFL Participants—through June 30, 2006	Robust	1,108,813	298	0
		Basic	16,196,526	4,609	0
Business	Non-CFL Participants—through June 30, 2006		629,248	452	845
	Total	Robust	**19,005,005**	**1,273**	**845**
		Basic	**34,092628**	**5,584**	**845**

For the business programs, nontracked impacts are not broken out by program. Instead, they are categorized and "CFL Participants" and "Non-CFL Participants." The "CFL Participants" are businesses in the Agricultural and Commercial programs that have received rewards through the ENERGY STAR Products program, which accounts for approximately 20 percent of the overall business programs savings. "Non-CFL Participants" are the business sector participants that have received benefits and services from Focus on energy through initiatives other than ENERGY STAR Products program.

2.3 MARKET EFFECTS

One of the objectives of Focus is to be able to translate market effects into energy impacts attributable to program activities or specific market interventions by the programs. Translation into energy impacts is important to allow inclusion of impacts of program-induced market effects into long-term energy resource planning and for appropriate evaluation of the benefit-cost ratio of market transformation-oriented programs or programs with significant market transformation components. While a relatively high level of uncertainty is inherent in estimating the energy impacts of market transformation-oriented programs, the uncertainty

can be managed. For example, consistent measurement of key market effects and/or their indicators over time will allow for significant reduction of the uncertainty.

Ultimately, for the concept of market transformation to be proven and the potential significant benefits realized, it is critical for policy makers to provide consistent and sound policy objectives, administrators to use discipline in designing their programs with clear program logic models, and evaluators to consistently provide appropriate feedback through implementation of sound research. Then, policy makers and administrators can use the evaluation feedback (along with other sources of information) to inform policy changes and refine their program logic models.

Both market indicators and market effects can be translated into energy impacts attributable to the program. Market indicators (for example, Point-of-Sale (POS) data) provide value because (1) changes in indicators can typically be measured earlier after an intervention than can changes in market effects; (2) indicators can provide insights into drivers of changes in market effects; and (3) because indicators that are typical pre-cursors to actual purchase behavior represent important stages in program logic—and therefore facilitate assigning appropriate attribution to the program.

The length of time it takes before measurable changes can be observed in either market indicators or market effects metrics can vary dramatically, depending on the market actors targeted by the intervention (e.g., changes at the manufacturer level can have a dramatic impact sooner); the size of the intervention; the size of the market; the readiness of the market for a product; etc. Typically, market indicators are more likely to be measurable in the short term, but can "evaporate" after a year of program activity. Market effects (for example, manufacturer sales data), involve a much longer time span and are unlikely to be measurable until after at least a year of program activity. Market effects that are sizable enough to be translated into energy impacts should not typically be expected until at least three to five years of program activity.

Much of the Focus evaluation efforts to date have been focused on review of market indicators, including (but not limited to) those market indicators that have been included as contract metrics each year for the program administrators. However, in FY07, the residential evaluation team—in coordination with the business program evaluation team—established a comprehensive system for collecting retail-based CFL sales information that addresses the limitations of the former POS approach. A *uniform approach* to program attribution for all sectors touched by the retail-based CFL initiative (i.e., residential, commercial, agricultural, and multifamily). The system, carried into FY08, provides a representative picture of Wisconsin retail-based CFL sales by including both participating and nonparticipating retailers. The system attempts to include a census of retailers who are responsible for the bulk of rewarded CFL sales, a statewide representative sample of the remaining participating retailers, and, a statewide representative sample of nonparticipating retailers. The *Comprehensive CFL Market Effects Study* report presents the initial findings of this effort.

2.4 ECONOMIC IMPACTS[i]

One of the goals of Wisconsin Focus on Energy programs is to support economic development. In general, economic development is a process of enhancing the state's economy by supporting the growth, retention, and attraction of business activity in the state. By strengthening and diversifying the state's economic base, Wisconsin residents can enjoy better job opportunities, higher incomes, and higher living standards. Economic prosperity

can also increase revenue for state and local government. In an era of global economic change and uncertainty, it is particularly important to see that programs such as Focus are indeed addressing these economic development goals.

Focus directly affects participating business and residential customers' energy costs. Decreasing energy costs through increased efficiency and conservation can make business operations more profitable and can also leave more money in families' pockets (to spend on other desired purchases). By lowering costs of doing business, it also makes Wisconsin a more competitive location for additional business attraction, investment, and expansion.

Focus also creates other direct and indirect impacts throughout Wisconsin's economy. Wisconsin businesses are major manufacturers of heating and air conditioning equipment, motors, and controls. Focus stimulates sales for these industries in Wisconsin, as well as the development of solar, wind, and biomass energy production within the state. At the same time as it is increasing the flow of dollars staying within Wisconsin, it is also reducing the outflow of money from the state associated with importation of coal and natural gas.

There are also cost effects. When customers make energy-efficiency purchases that they might not have made, they are also spending some of their own money, because Focus pays only part of the extra cost of buying energy-efficient equipment. The Public Benefits charge that funds Focus is a cost to customers, although not a new one, since customers have paid the cost of demand-side management programs through utility rates for a number of years.

To analyze the economic development impacts of the Focus on Energy programs, the following three steps were performed for two funding scenarios (low and high) in the FY07 research and will be conducted again in 2008:

(1) Document Direct Effects. The first step is to track the net direct effects of the program. These are changes in program-related spending by Focus and program participants, household, and business savings in energy costs, and spending on new equipment. Here, careful attention is given to establishing net changes *compared to what would otherwise be expected to occur without the program*.

(2) Apply the Economic Model. The second step is to apply the Regional Economic Models, Inc. (REMI) economic model of Wisconsin. This is a tool used to trace how the direct effects (from step 1) lead to changes in household and business costs, spending and sales patterns in the state. In our analysis, we apply the Wisconsin statewide REMI model to track impacts including:

1. Lower business operating costs
2. Lower household living costs
3. Reduced outflow of dollars to purchase out-of-state coal and natural gas
4. Increase in dollars going to equipment manufacturers and installers in Wisconsin
5. Emissions benefits from NO_x and SO_2 reductions (monetized)
6. Non-energy benefits (monetized)
7. Indirect effects on orders for business suppliers and induced effects of workers re-spending their income within Wisconsin.

Results of the REMI model represent changes in the state economy over time. The key indicators of change in the state's economy are changes in business sales, jobs, personal income, and value added (gross regional product) in Wisconsin.

(3) Analyze Policy Implications. The third and final step in the analysis process is to apply results of the economic model (from step 2) to assess how the forecast program impacts translate into economic development changes. These include:

1. Diversified business growth
2. Expanded mix of those jobs available to Wisconsin residents
3. Shifts in the nature and size of impacts occurring over time
4. Shifts in the competitiveness of Wisconsin as a place to live and to locate a business
5. Changes in the incidence of economic impacts, in terms of urban and rural locations.

This general approach for conducting economic impact analysis, using a regional economic model, has been proven in use around the country including studies of the economic impacts of energy programs and policies in over twenty states.

2.4.1 Summary of Economic Analysis Results

The REMI economic model generated estimates of economic impacts of Focus on Energy from its inception in 2002 through 2026. Program funding was assumed, for purposes of this analysis, to continue through 2012 after which measure-related savings persist with some decay and market transformation effects begin to take hold. Since a key feature of Focus programs is energy cost savings for households and businesses, and since those savings continue over the lifetime of installed equipment, it is necessary to measure economic impacts over a period of time. This analysis examined Focus programs assuming a ten-year implementation span. However, some economic impacts will continue for an additional 15 years beyond any active program period.

Tables 2-7a and 2-7b summarize the economic analysis results for all Focus programs combined—including Residential, Renewables, and Business programs for low and high funding scenarios. The tables show the projected economic impacts for selected years and periods. They also show how program impacts accumulate over a 25-year interval. These economic impacts are presented in terms of (1) the number of job years created for Wisconsin residents, (2) the sales generated for Wisconsin businesses, (3) the value added portion of those sales, and (4) disposable income generated for Wisconsin residents.

The tables also summarize impacts when both the Residential and Business programs include expected "market effects" beyond what the program instigates in terms of increases in household and business purchases of energy efficient products, adoption of energy efficient practices, and the ensuing energy savings. These are effects in the economy without formal program participation. Market effects reflect the behavior of customers, retailers, wholesalers, and manufacturers who are influenced by Focus programs to take additional actions on their own to increase the supply and use of energy-efficient equipment *that they would not have done without the existence of the program.*

Altogether, the analysis found that Focus leads to significant economic development benefits for Wisconsin's economy. Even without counting market effects, the first year of program

operation (fiscal year 2002) resulted in a variety of household and business cost savings and spending changes that altogether support over 351 jobs in the state, and that impact grows to 1,417 jobs by the fifth year of program operation (fiscal year 2006). The disposable income generated in Wisconsin from program-generated savings and this additional business activity represents $12 million in the first year, and grows to $85 million by the fifth year of program operation. The impacts inclusive of market effects also grow over time, adding a small impact in the first five years, but then adding roughly 2.9–4.0 percent to jobs and income over the 25-year analysis interval.

Tables 2-7a and 2-7b. Economic Development Impacts for all Focus on Energy Programs, Low and High Funding Scenarios

Low Funding Scenario (mil. $ 2006)	Year 1	Year 5	Year 10	Sum 10 Years	Sum 25 Years
Impact without Market Effects					
Jobs (job year for sums)	351	1,417	3,216	16,711	60,496
Sales generated	$39	$181	$444	$2,208	$8,984
GRP (Value-added)	$26	$104	$265	$1,310	$5,415
Disposable income generated	$12	$85	$213	$1,014	$4,195
Impact with Market Effects*					
Jobs (job year for sums)	351	1,418	3,218	16,716	62,296
Sales generated	$39	$181	$444	$2,209	$9,261
GRP (Value-added)	$26	$104	$266	$1,310	$5,575
Disposable income generated	$12	$85	$213	$1,014	$4,366
*note: Renewable program has no built in market effect projections					

High Funding Scenario (mil. $ 2006)	Year 1	Year 5	Year 10	Sum 10 Years	Sum 25 Years
Impact without Market Effects					
Jobs (job year for sums)	351	1,417	3,934	18,229	73,233
Sales generated	$39	$181	$549	$2,438	$10,863
GRP (Value-added)	$26	$104	$316	$1,411	$6,637
Disposable income generated	$12	$85	$257	$1,097	$5,095
Impact with Market Effects*					
Jobs (job year for sums)	351	1,418	3,949	18,275	77,741
Sales generated	$39	$181	$551	$2,445	$11,598
GRP (Value-added)	$26	$104	$318	$1,415	$7,060
Disposable income generated	$12	$85	$258	$1,100	$5,468
*note: Renewable program has no built in market effect projections					

Who benefits? To assess the diversity of economic development benefits, the REMI economic model was applied to show the breakdown of economic growth impacts by industry sector and occupation category. The comparison of job impacts by industry shows that Focus programs provide widespread benefits among all sectors of the economy. While many of the program participants are manufacturing and commercial businesses, many of the spillover economic benefits accrue to wholesalers, retailers, and service providers that provide goods and services to participating businesses, or that benefit from the re-spending of additional household income within the state. A further analysis shows that the program economic benefits are concentrated on those industries that offer growth for the state economy.

A further breakdown of job impacts by occupation shows that the types of additional jobs created or supported by Focus programs span a wide range of skill-levels among both blue-collar and white-collar categories. In addition, the impacts are widely distributed among urban and rural areas, with urban areas having proportionally greater participation in the residential programs while the semi-urban and rural areas have had proportionally greater participation in the industrial programs.

The economic analysis for Focus on Energy is scheduled to be conducted again in this contract period (FY08). Results will be provided in the *Semiannual Report* issued in the first calendar quarter of 2009, which will cover the period July 1, 2007–December 31, 2008.

2.5 ENVIRONMENTAL IMPACTS

Evaluators also estimated emission factors or rates for the electric generating plants serving Wisconsin (Table 2-8)[ii] and used these data to estimate displaced emissions associated with the Focus programs (Table 2-9). The evaluation team estimated the generation emissions rates shown in Table 2-8 using hourly measured emissions data from EPA data in a model developed by the evaluation team to estimate emissions rates for NO_x, SO_2, CO_2, and mercury for the power plants supplying Wisconsin. Emissions factors from reduced use of natural gas at the customer site (the "On-site Therms" column in Table 2-10) were also taken from EPA data. There are also very small amounts of NO_x and SO_2 in natural gas but they are not large enough to significantly affect the emissions numbers.

The figures in Table 2-8 are updated from the previous *Semiannual Report* submitted on September 11, 2007. The results are now based on EPA data from 2005 rather than 2000. Under the same assumption of a single marginal unit, emission factors for NO_x, SO_2, and mercury have declined significantly. The emission factor for CO_2 increased somewhat.

One predominant factor in the per-MWh decrease in emissions of NO_x, SO_2, and mercury appears to be the significant reduction in the use of coal as a fuel. In 2000, coal accounted for 96.5 percent of the energy production in Wisconsin monitored by the EPA (i.e., excluding hydroelectric and nuclear power). By 2005, coal accounted for only 87.3 percent, the difference primarily made up by pipeline natural gas, both a cleaner fuel and a fuel burning in newer, cleaner plants. Thus, fewer coal burning plants and more natural gas burning plants were marginal units in 2005.

Table 2-8. Electrical Generation from Wisconsin Plants Monitored by the EPA (Excludes Hydro and Nuclear)

Fuel	2000 GWH	2000 Percent	2005 GWH	2005 Percent
Coal	42,276	96.5%	36,650	87.3%
Natural Gas	106	0.2%	168	0.3%
Pipeline Natural Gas	384	0.9%	4,947	11.8%
Diesel	834	1.9%	0	0.0%
Oil	208	0.5%	0	0.0%
Wood	0	0.0%	205	0.5%
Total	**43,809**	**100.0%**	**41,970**	**100.0%**

Source: Environmental Protection Agency, Office of Air and Radiation, "Acid Rain Hourly Emissions Data" for 2005.

Also, in the period between 2000 and 2005, the per-MWh emission of NO_x from coal-burning plants decreased significantly and to a lesser degree decreased for SO_2 as well. We note, parenthetically, that the emission factors for pipeline natural gas also declined sharply for NO_x and SO_2. We believe this reflects the introduction of newer, more efficient gas-burning plants.

The following table shows emissions factors by fuel type for 2000 and 2005 *on all units*. (Note that the basis is therefore different than for Table 2-10, which represents only marginal plants.)

Table 2-9. Emissions Factors by Fuel Type, 2000 and 2005, for Wisconsin Plants Monitored by the EPA (Excludes Hydro and Nuclear)

	NO_x (lbs/MWH)		SO_2 (lbs/MWH)		CO_2 (lbs/MWH)		Hg (lbs/GWH)	
Fuel	**2000**	**2005**	**2000**	**2005**	**2000**	**2005**	**2000**	**2005**
Coal	6.00	4.81	11.57	11.24	1,250	1,320	0.06	0.06
Natural Gas	4.07	3.58	0.61	0.11	1,040	800	0.00	0.00
Pipeline Natural Gas	2.01	0.81	0.07	0.02	1,340	800	0.00	0.00
Diesel	1.68		0.10		920		0.01	
Oil	3.53		0.18		2,000		0.02	
Wood		6.73		4.85		1,570		0.00
Total	**5.64**	**4.15**	**10.48**	**8.67**	**1,250**	**1,220**	**0.06**	**0.04**

In general, the emissions produced per MWh of electricity generated, went down from 2000 to 2005, with the exception of the CO_2 in coal-fired generators, which increased from 1,250 pounds per MWh in 2000 to 1,320 pounds per MWh in 2005.

Table 2-10. Emissions Rates

Emissions	Generation lbs/MWh	On-site Therms lbs/Therm
NO_x	1.9	.01
SO_2	3.7	.00006
Mercury (Lbs/GWh)	0.0154	
CO_2	1,692	11.708

Sources: Generation factors from *Estimating Seasonal and Peak Environmental Emissions Factors*. Jeff Erickson with Carmen Best, David Sumi, Bryan Ward, Bryan Zent, and Karl Hausker; PA Government Services Inc. Report for the Wisconsin Department of Administration, Division of Energy. Focus on Energy statewide evaluation. May 2004.

Therm factors from EPA data (EPA's *E-Grid 2000 database* with data for the MAIN and MAPP NERC regions from 1998). Update based on memo from Eric Rambo and Bryan Ward dated January 5, 2007.

Using the marginal cost emission rates and evaluation-verified net electricity savings estimates,[iii] the Focus programs together potentially displaced 1,672,073 pounds of NO_x; 3,653,595 pounds of SO_2; over 1,969 million pounds of CO_2; and over 14 pounds of mercury from Focus inception to June 30, 2008 (Table 2-12).

Table 2-11. Net Emissions Displaced (lbs) Annually
First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)

Program Area	Net MWh	Net Therms	NO_x	SO_2	CO_2	Mercury
Business	133,768	4,542,655	254,427	539,480	279,758,359	2.18
Renewables	123	225,673	248	2,669	2,862,973	0.01
Residential	89,040	1,873,228	169,288	347,816	172,686,509	1.42
Total	**222,931**	**6,641,556**	**423,963**	**889,965**	**455,307,841**	**3.60**

Table 2-12. Net Emissions Displaced (lbs) Annually
Cumulative in Current Year (July 1, 2001–June 30, 2008)

Program Area	Net MWh	Net Therms	NO_x	SO_2	CO_2	Mercury
Business	482,119	31,069,195	917,854	2,088,445	1,181,120,574	8.22
Renewables	9,564	1,213,592	18,243	47,285	30,454,606	0.18
Residential	387,085	8,736,031	735,976	1,517,865	757,684,968	6.18
Total	**878,768**	**41,018,818**	**1,672,073**	**3,653,595**	**1,969,260,148**	**14.58**

Emission reductions are calculated using the marginal cost emission rates.

Wisconsin's investor-owned utilities are included in the federal SO_2 regulatory structure of the Clean Air Act (acid rain provisions). In this cap-and-trade system SO_2 emissions cannot be considered reduced or avoided unless EPA lowers the SO_2 cap.

The Department of Natural Resources (DNR) has developed an emissions registry to track emissions reductions in Wisconsin. The ongoing reporting of emissions reductions associated with Focus programs' energy impacts has been the basis for the Division of Energy's entries to the DNR's *Voluntary Emissions Reduction Registry (http://www.dnr.state.wi.us/org/aw/air/registry/index.html*). For purposes of this Registry, the Focus evaluator serves as the independent third-party verification organization for a residential program offered through Wisconsin's Focus on Energy. The program, ENERGY STAR® Products, promotes the installation of energy-efficient appliances, lighting, and windows. Drawing upon the evaluation activities conducted over the past four years, the emissions savings from the Energy Saver compact fluorescent light bulb portion of the program were verified for the Registry. The calculations, assumptions, and research activity backup that supports the registered reductions in emissions associated with the verified energy impacts of the program are cited and available on the state's DNR website.

In June 2008, another analysis was reported for Focus on Energy emission rate estimates, this time for the period 2002–2006. This report is currently in its draft version. However, we plan to update the emissions results that are included in this draft *Semiannual Report* for the final version of this *Semiannual Report.*

2.6 NON-ENERGY BENEFITS

Table 2-13 shows the total value of non-energy benefits (NEBs) for each program area. The NEBs reported are based on the reports that were completed for each program area.[4] NEBs values are calculated using the same approach utilized by the recently completed benefit cost analysis. However, they are a combination of one-time savings and ongoing savings, so it is not straightforward to turn these values into lifetime benefits. A review of the NEBs attributed to Focus is in process. A draft report will be issued in early August.

Table 2-13. Value of Non-energy Benefits by Program Area

Program Area	Value of Non-energy Benefits	
	First 12 months of the 18-month Contract Period (July 1, 2007–June 30, 2008)	Lifecycle Persistent Net (as of June 30, 2008)
Business Programs	$4.7 million	$21.8 million
Example Benefits from Business Programs: • Maintenance employee morale • Equipment life • Productivity • Waste generation • Defects and errors • Sales • Non-energy costs • Personnel needs • Injuries and illnesses		
Residential Programs	$4.6 million	$27.3 million
Example Benefits from Residential Programs: • Increased safety resulting from a reduction of gasses such as carbon monoxide due to the installation of a new high-efficiency furnace • Fewer illnesses resulting from elimination of mold problems due to proper air sealing, insulating and ventilation of a home • Reduced repair and maintenance expense due to having newer, higher quality equipment • Increased property values resulting from installation of new equipment • Reduced water and sewer bill from installation of an ENERGY STAR qualified washing machine, which uses much less water than conventional washing machine.		
Renewable Energy Programs	$7,812	$646,419
Example Benefits from Renewable Energy Programs: • Greater diversity of primary in-state energy supplies • Use of wastes as a fuel instead of disposal • Increased ability to handle energy emergencies or generation short-falls • Increased sales of renewable energy by-products.		

[4] Jeff Riggert, Nick Hall, and Tom Talerico, TecMRKT Works, *Non-energy Benefits Cross-cutting Report. Year 1 Efforts, December* 4, 2002.

Nick Hall and Johna Roth, TecMarket Works, *Non-energy Benefits to Implementing Partners from the Wisconsin Focus on Energy Program*, October 20, 2003.

Nick Hall, TecMarket Works, *A Qualitative Program Effects Status Study,* January 17, 2005.

2.7 HISTORICAL SIMPLE B/C AND COST OF CONSERVED ENERGY (CCE)

This section of the *Semiannual Report* presents the simple benefit-cost test and cost of conserved energy results for the first six months of 2008 and for the program to date, along with information on the key input assumptions for the analysis. Note that this is different from section 2.8, which presents results from the benefit cost analysis completed in FY07 covering a ten-year program horizon. The numbers presented in this section are based on the program activities through June 30, 2008. However, the inputs and methodology applied are consistent.

The simple benefit-cost test is based on the Total Resource Cost (TRC) test, a commonly used test of program cost effectiveness. The test compares program and participant costs against the avoided costs of supplying the conserved energy. The methodology and inputs used for this test are consistent with the recently completed benefit cost reports, which is covered in greater detail in section 2.8.

The methodology for calculating the cost of conserved energy was outlined in a memo report issued by the evaluation team (*Cost of Conserved Energy (CCE): Potential Calculations for Focus on Energy*, October 31, 2005). The specification and calculation of CCE originated with the desire to compare energy conservation measures, specific technologies, energy efficiency (EE) programs, or entire program portfolios to the relative cost of achieving a specific unit of energy savings (i.e., $/kWh). A key potential benefit of the CCE approach is to give equal weight to both energy *supply* and energy *demand* options. Thus, cost of conserved energy curves were developed about two decades ago to place energy efficiency cost estimates at a level comparable to that for supply-side options (Meier, 1982). Much of the early development of CCE curves was conducted at the Lawrence Berkeley National Lab. Recent development work has been sponsored by the California Energy Commission (CEC)[5] . Based on reporting by ACEEE, CCE results have also been calculated and reported by six other public benefits states. They are California, Connecticut, Massachusetts, New Jersey, New York, and Vermont.

The cost of conserved energy has several inputs in common with the simple benefit-cost test. For example, the discount rate and the expected life of the savings resulting from the program(s) and the results of the two tests are presented together in the tables below.

It should be noted that one of the key assumptions for calculating the cost of conserved energy for programs that result in both electric and gas savings is the allocation of program costs (a known value) to the attributed savings. In other words, what proportion of the program costs were required to generate the electric savings and what proportion of the program costs were required to generate the gas savings? In Tables 2-15 and 2-16 below, the allocation of program costs is indicated in the column “Elec %” The methodology for attributing program costs is based on a three-step process that is based on the value of incentive dollars paid to realize the energy savings, where this is known. A number of incentives, however, are related to measures that realize both electric and gas savings. And, other incentives are paid for measures/activities for which no energy savings is directly

[5] See Sathaye, Jayant, and Scott Murtishaw. 2004. *Market Failures, Consumer Preferences, and Transaction Costs in Energy Efficiency Purchase Decisions.* Lawrence Berkeley National Laboratory for the California Energy Commission, PIER Energy-Related Environmental Research. CEC-500-2005-202.

related. For these the program cost allocation is based on the value of the energy savings realized by the program.

2.7.1 Key Inputs:

Discount rate: 5%

Table 2-14. Utility Avoided Costs

Sector	kW	kWh	Therms
Schools/Government	$104.00	$0.056	$0.917
Commercial/Agriculture			$0.987
Industrial			$0.878
Residential			$1.061

Details on measure life and the basis for incremental costs are presented by program and b/c measure category in Appendix C of this report.

2.7.2 Definitions for Each of the Columns in Tables 2-15 and 2-16

Value of Energy Savings. The present value of the utility avoided costs over the life of the measures installed through the program. This is comparable to the "documentable savings" referred to in the next section.

Value of Avoided Emissions. The present value of the utility avoided costs over the life of the measures installed through the program. This is comparable to the "externalities" referred to in the next section.

Program Costs. Program spending less incentives, but including program administrative costs

Incremental Costs. The costs of a measure over and above a standard efficiency measure. For the renewables program area, it is the full project costs. The NTG ratio is applied to these costs to obtain the value to be included in the simple b/c formula.

Simple B/C. The simple benefit-cost ratio

CCE kWh. The cost of conserved energy for each kilowatt-hour saved

CCE Therms. The cost of conserved energy for each therm saved

Elec %. The proportion of the program cost that are allocated to electricity savings

NTG kWh. The net-to-gross ratio for the electric energy savings

NTG Therms. The net-to-gross ratio for the gas energy savings

The business program area has the best simple b/c ratio for the first half of 2008 and program to date at 2.7 and 3.2, respectively. For the residential program area, the simple b/c ratios are 1.1 and 1.4, respectively. For the renewables program areas, the simple b/c is 0.6 for the first half of 2008 and1.0 for program to date. The results of the simple b/c test indicate that the benefits outweigh the costs of the Focus on Energy across all of the program areas combined.

Table 2-15. Simple Benefit-Cost and Cost of Conserved Energy
First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)

Program Area	Value of Energy Savings	Value of Avoided Emissions	Program Costs	Incremental Costs	Simple B/C	CCE kWh	CCE Therms	Elec %	NTG kWh	NTG Therms
Business	$97,393	$1,617	$11,259	$39,891	2.7	$0.022	$0.183	72%	62%	50%
Renewables	$2,048	$14	$1,663	$995	1.2	$2.112	$0.224	86%	5%	46%
Residential	$36,941	$765	$4,645	$31,236	1.2	$0.033	$0.581	56%	85%	95%
Total	**$136,382**	**$2,397**	**$17,566**	**$72,122**	**2.1**	**$0.027**	**$0.241**	**69%**	**69%**	**57%**

Dollar values, with the exception of the CCE values, are denominated in thousands (000).

Table 2-16. Simple Benefit-Cost and Cost of Conserved Energy
Program to Date (July 1, 2001–June 30, 2008)

Program Area	Value of Energy Savings	Value of Avoided Emissions	Program Costs	Incremental Costs	Simple B/C	CCE kWh	CCE Therms	Elec %	NTG kWh	NTG Therms
Business	$554,537	$11,733	$72,545	$193,582	3.1	$0.026	$0.164	68%	56%	57%
Renewables	$19,714	$73	$9,448	$24,753	1.3	$0.143	$0.114	92%	22%	34%
Residential	$253,560	$5,548	$55,195	$168,526	1.4	$0.046	$0.675	68%	79%	88%
Total	**$827,811**	**$17,354**	**$137,188**	**$386,861**	**2.2**	**$0.035**	**$0.245**	**69%**	**64%**	**60%**

Dollar values, with the exception of the CCE values, are denominated in thousands (000).

2.8 BENEFIT-COST ANALYSIS[iv]

The analysis takes a societal perspective to counting Focus benefits and costs. The "simple" b/c test (results presented below in Table 2-17) is somewhat conservative. It counts as benefits only the avoided costs of well-documented *net* energy savings. These avoided costs include the value of avoided emissions for which active offset markets currently exist. The simple test is comparable to Total Resource Cost or Societal tests typically done in other states.

The "expanded" test used is intended to be more realistic by including a broader range of effects (Table 2-18). However, including this broader set of effects requires using estimates that have somewhat less empirical certainty and that are not necessarily counted in other jurisdictions.

Costs in both tests are program spending, excluding incentive payments, and customer incremental costs for measures attributable to the programs.

The expanded b/c test expands upon the simple test in several ways.

- Market effects are counted that are considered reasonably likely, but have not been rigorously or precisely quantified in impact analysis to date.
- Non-energy benefits (and costs) are included for all programs.
- Avoided emissions externality costs for expected future emissions offset markets are counted as a benefit.

- Benefits are valued in terms of their net impact on the economy, as determined from the economic impact analysis. The net economic impacts take into account the economic ripple effects on the Wisconsin economy of energy savings and associated non-energy and emissions effects.

Documentable Savings, Measure Life, and Decay Rates. Documentable savings for the earlier program years are taken from the prior evaluation reports, in particular the most recent year-end report. In addition, the energy efficiency measures installed typically last for a number of years, so their lifetime energy impacts would be calculated by multiplying the annual energy savings by the number of years that the energy efficiency measure is expected to be in operation. These lifetime energy impacts—explicitly considering measure life interpreted as the median number of years of expected operation—are now termed in Focus evaluation impact reporting *lifecycle* energy impacts. An additional new concept embodied in the energy impacts used in this Benefit-Cost Report is *persistent* savings. These are *lifecycle* impacts that also include an exponential decay rate, such that half the savings remains after the measure life.

Measure life was assessed for each program component by the program area evaluators, primarily based on secondary sources. This measure life is interpreted as the median measure life. (Measure lives for all program measures included in this analysis are provided in Appendix D of the *Interim Benefit-Cost Analysis: FY07 Evaluation Report*.) The savings implemented in each program year is extended into the future with an exponential decay rate, such that half the savings remains after the measure life.

That is, we interpret the measure life identified from the literature as the time until half the units would be expected to have failed or been removed. This interpretation is consistent with the persistence study framework used in California and elsewhere. Under those rules, the "expected useful life" is the median survival time, where "surviving" means remaining in place and operable.

With this interpretation and an assumed exponential decay, the fraction f of savings that survives from one year to the next is given by

$$f = 2^{-(1/L)}$$

where L is the measure life. For example, if the measure life is 15 years, the surviving fraction each year is

$$f = 2^{-1/15} = 95.5\%.$$

The decay rate is

$$d = 1-f = 4.5\%.$$

Thus, in this example, the surviving savings from the prior year is calculated as 95.5% of the prior year's amount; 4.5% of the prior year's savings is lost. Associated non-energy and environmental benefits decay at the same rate.

The exponential decay formula implies a constant failure rate over time. This assumption is not necessarily realistic for many measures. Experience from numerous persistence studies conducted in California indicates that the failure process is often a mixture of two

phenomena—in the short term, removal due to defect or dissatisfaction, and in the longer term, more or less steady wear-out patterns. This mixture suggests a "hazard rate" that is high in the early years, then declines, becoming stable (exponential) or eventually rising again in much later years.

The Weibull function is commonly used for survival analysis. This form can give either an increasing or decreasing hazard rate, but not one that starts high, drops, then stabilizes or climbs. For a fixed median measure life, we considered a Weibull with shape parameter 1/2 (decreasing hazard) and one with shape parameter 2 (increasing hazard). The first gives a five to ten percent NPV and the second gives a five to ten percent higher NPV compared to the exponential. A mixture of the two distributions, representing a combination of the two contributing phenomena, would give NPV somewhere between, or close to that from the exponential itself. Thus, the exponential assumption, which is computationally convenient, appears to yield appropriate end results for purposes of this analysis.

Spending Scenarios. For this long-term analysis, conducted in the middle of the life of the program, it is necessary to establish meaningful assumptions of the levels and duration of future program spending. Two spending scenarios are considered.

- The low-funding version of the analysis assumes that spending levels will be similar to those observed in the first five program years. This version indicates the cost-effectiveness of the program as it has existed to date, but assumes a longer total program life. The low-funding scenario provides a minimum realistic benefit-cost assessment.
- The high-funding version assumes that spending rises based on the currently legislated funding levels for the remaining years. Under this scenario, we also count additional market effects that are reasonably likely under increased funding but have not been documented for the programs so far. Thus, the high-funding scenario provides a measure of likely cost-effectiveness of the programs as they could proceed under current funding plans.

Benefit-Cost Analysis Results. In terms of benefit-cost ratios, the low- and high-funding scenarios gave very similar results for Focus as a whole, as well as for the Business and Residential program areas and individual programs. We present the high-funding results as representing a more likely future path for the programs. The consistency with the low-funding results reduces possible concern that the cost-effectiveness would be overstated if future funding turns out to be less than currently planned.

Focus as a whole is projected to have positive net benefits for the state for all forms of the benefit-cost comparison conducted. For the expanded test, high-funding assumption, the projected net present value of 10 years of program operations over a 25-year horizon is a net benefit of $4.4 billion. The benefit-cost ratio for Focus as a whole is 5.3. Under the more conservative simple test, net benefits are $1.4 billion, with a benefit-cost ratio of 2.4.

Table 2-17. Benefits and Costs by Program Area
25-Year Net Present Value ($000,000), Simple B/C Test, High Funding

Program Area	Benefits	Costs	Net Benefits	B/C Ratio
Residential	$785	$469	$316	1.7
Business	$1,499	$483	$1,016	3.1
Renewables	$94	$56	$38	1.7
Total	**$2,377**	**$1,008**	**$1,369**	**2.4**

Table 2-18. Benefits and Costs by Program Area
25-Year Net Present Value ($000,000), Expanded B/C Test, High Funding

Program Area	Benefits	Costs	Net Benefits	B/C Ratio
Residential	$1,418	$469	$950	3.0
Business	$3,577	$483	$3,094	7.4
Renewables	$366	$56	$310	6.5
Total	**$5,361**	**$1,008**	**$4,353**	**5.3**

The Residential Portfolio has projected benefits substantially above the program costs. The net benefit is estimated at $0.3 billion using the simple test and $1 billion with the expanded test. The benefit-cost ratio is 1.7 using the simple test and 3.0 using the expanded test. A large fraction of the program area achievement comes from compact fluorescent bulbs, both through direct savings tracked by the program and through market effects savings. The ENERGY STAR® Products (ESP) program, which is dominated by the CFL effort, has the highest simple b/c ratio of any of the Residential Programs.

The Business Program area has net benefits of $1 billion and a benefit-cost ratio of 3.1 under the simple test and $3.1 billion and 7.4 under the expanded test. These b/c ratios represent improvements compared to the findings from the initial b/c report. Contributors to this improvement include increased attribution levels based on the most recent impact report, some projected added market effects savings, and, for the expanded b/c analysis, the inclusion of non-energy benefits. (The increased attribution stems largely from the change in attribution method for CFLs, applying the same analysis as has been used in the past for the Residential CFLs.)

For the Renewables program, the Low scenario appears to represent a more realistic estimate of the overall b/c ratio than does the High scenario. Under this scenario, the b/c ratio is 1.7 using the simple test, and 6.5 using the expanded test. Thus, even under the most conservative analysis, the program is cost-effective.

In tandem and coordinated with the economic analysis scheduled for later this year, the Benefit-Cost analysis will again be conducted for Focus on Energy. These results will be reported separately in their entirety and will also be included in the *Semiannual Report* issued in the first calendar quarter of 2009.

2.9 COMPARISONS OF FOCUS ENERGY IMPACTS AND ACHIEVABLE POTENTIAL

As part of an effort to present additional information at the measure and market levels, this section supplements the energy impacts results reported at the technology-specific level with comparisons to *achievable potential* in Wisconsin. The intent of these comparisons is to

provide some insights regarding the present selection of markets promoted in Focus. The results for achievable potential are taken from the study on *Energy Efficiency and Customer-Sited Renewable Energy: Achievable Potential in Wisconsin 2006–2015* prepared by the Energy Center of Wisconsin (ECW) on behalf of The Governor's Taskforce on Energy Efficiency and Renewables (November 2005). In the following discussion, the ECW's report is referred to as the *Potential Study*. Prior to presenting the comparison results in tables, the methods used are summarized.

2.9.1 "Mapping" Focus Measure Categories to Potential Study Markets

The ECW's *Potential Study* produced results for 36 markets (15 C&I, 15 residential and 6 renewable). To compare to Focus impacts, some of these markets have been combined and others have been added to provide information about the types of markets that had significant activity in Focus but were not included in the *Potential Study*, e.g., energy-efficient refrigerators and freezers in the residential sector (see Tables 2-19 through 2-24).

To make comparisons between potential savings and achieved savings, the first step was to "map" or assign the measures installed through Focus to the *Potential Study* markets. The evaluation team made the initial assignments early in FY07 with some review by the ECW's author of the *Potential Study* report. Subsequently, there has been collaboration between the program administrators and representatives from the ECW and the evaluation team to review the assignments. This has resulted, over time, in a number of changes being made to the assignments of Focus measures for both the residential and the commercial and industrial markets. Changes in the evaluation reporting database have now made it easier to specify market assignments at the measure level, where for the commercial and industrial sectors assignments were made at the program/measure category level. Therefore, additional review of the assignments of measures to markets has occurred, including PSCW and program implementers, as the measure lists for inclusion in the PSCW's tracking system for business programs have been established.

2.9.2 Markets with No Identified Potential

The *Potential Study* estimates the potential in the 30 C&I and residential markets "to save electric energy, electric demand, and natural gas at or below current utility avoided costs" (Volume I, page 9). The markets included were not exhaustive, therefore, it should be noted that there could be markets that were not included in the study that could provide additional potential for energy savings.

Where there are no Focus energy impacts noted for markets it is because current Focus programs do not capture energy savings from the market. Note that this can be affected by the *Potential Study's* definitions of markets and the mapping task of assigning Focus measure categories to markets.

2.9.3 Values Used to Represent Energy Savings Potential

The estimated values for market-specific energy efficiency potential have "considerable variation in the magnitude of these contributions, depending on the resource and sector in question" (Volume I, page 14). The *Potential Study* used 90 percent probability boundaries for each market's estimates. The point estimate used in the comparison tables in this report represents the upper boundary of the average annual incremental impact (referred to in the tables as "high" potential). Also, the *Potential Study* used both a 5-year and 10-year horizon

for estimating the incremental impacts. The point estimate is based on the 5-year horizon values.

All tables (2-19 through 2-24) use Focus net energy impacts for the period July 1, 2007, through June 30, 2008. A full year of Focus program results makes comparisons to the *Potential Study's* annual incremental potentials feasible.

In the results provided in these tables, the percent of potential achieved is color-coded as follows: red signifies that the Focus net savings are at least 66 percent of the estimated annual achievable potential (or have exceeded it); yellow indicates that the Focus savings are realizing 33 percent to 66 percent of the achievable potential; and, green identifies *Potential Study* markets for which Focus is realizing less than 33 percent of the achievable potential. The intent of this scheme is to assist the reader in interpreting the many comparisons.

A. COMMERCIAL & INDUSTRIAL MARKETS

Table 2-19 provides the comparison results for electric C&I markets. As shown in the table, and summarized in the *Potential Study* report (Volume I, page 14), "Lighting, industrial process improvements, commercial new construction and industrial pump system improvements dominate the C&I sector contribution to overall potential." A close convergence can be seen between achievable potential and actual net Focus kWh impacts for the most important end-use—lighting. The *Potential Study* indicates that lighting markets account for about 46 percent of achievable potential. At this end-use level, Focus measures assigned to the two lighting markets (specified in the *Potential Study*) contributed about 50 percent of Focus kWh savings in the 12-month period (FY08). Focus is therefore achieving 72 percent of the kWh potential.

There are two markets in which Focus had no savings in fiscal year 2008. These also tend to be the markets that are expected to have little potential. It should be noted that some measures in markets such as wastewater are captured in other markets such as motors and pumps. A lack of tracked savings in a sector does not indicate that there is no activity. Focus is approaching or has exceeded the estimated annual market potential in six of the C&I markets. Finally, since the last *Semiannual Report*, Focus has markedly increased its percentage of savings from some markets (e.g., Commercial Unitary HVAC Replacement; Industrial Motors).

Table 2-19. Comparisons of Focus Electric Energy Impacts (Net, First 12 Months of the 18-Month Contract Period, July 1, 2007–June 30, 2008) and Achievable Potential—Commercial & Industrial Markets

Market ID	Market	Annual kWh Potential - High	% of kWh Potential - High	Net kWh Savings	% of kWh Savings	% of kWh Potential Achieved
1.01	High Performance New Buildings	15,636,000	7.7%	2,415,887	1.8%	15.5%
2.01	Commercial Unitary HVAC Replacement and System Improvements	2,103,000	1.0%	2,631,018	2.0%	125.1%
3.00	C&I Lighting Remodeling and Replacement and Retrofit	93,898,000	46.4%	67,787,650	50.7%	72.2%
4.01	Commercial Boiler Replacement and Systems Improvements	0	0.0%	1,344,199	1.0%	
6.01	Commercial Chiller Replacement and System Improvements	3,028,000	1.5%	5,104,708	3.8%	168.6%
7.01	Commercial Ventilation System Improvements	5,893,000	2.9%	2,589,442	1.9%	43.9%
8.01	Commercial Refrigeration System Improvements	6,486,000	3.2%	4,454,110	3.3%	68.7%
9.01	Industrial Motors: New, Replacement and Repair Market	3,096,000	1.5%	9,255,642	6.9%	299.0%

Market ID	Market	Annual kWh Potential - High	% of kWh Potential - High	Net kWh Savings	% of kWh Savings	% of kWh Potential Achieved
10.01	Industrial Compressed Air Systems Improvements	10,988,000	5.4%	16,467,228	12.3%	149.9%
11.01	Industrial Fan and Blower Systems Improvement	4,809,000	2.4%	0	0.0%	0.0%
12.01	Industrial Pump Systems Improvement	30,055,000	14.8%	2,776,870	2.1%	9.2%
13.01	Manufacturing Process Upgrades	10,154,000	5.0%	1,094,456	0.8%	10.8%
14.01	Municipal Water and Wastewater	4,449,000	2.2%	0	0.0%	0.0%
15.01	Agriculture Energy Efficiency	11,843,000	5.9%	11,053,391	8.3%	93.3%
70.00	Commercial Pumps			1,320,347	1.0%	
71.00	HVAC-Other			6,080	0.0%	
73.00	Waste Water Treatment			845,320	0.6%	
74.00	Commercial Dehumidification			36,107	0.0%	
99.02	Savings not Mapped to Market			4,586,297	3.4%	
	Totals	**202,438,000**	**100.0%**	**133,768,752**	**100.0%**	**66.1%***

The 66.1 percent of potential achieved is the sum of savings in markets for which annual potential was estimated over the total potential, recognizing that some of the markets have significantly exceeded their estimated annual potential.

Red = Focus net savings are at least 66 percent of the estimated annual achievable potential
Yellow = Focus net savings are realizing 33 percent to 66 percent of the achievable potential
Green = Focus net savings are less than 33 percent of the achievable potential.

Table 2-20 shows natural gas savings and potential for C&I markets. The *Potential Study* estimates that over 79 percent of the achievable potential is represented by Manufacturing Process Upgrades. For fiscal year 2008, about 38.5 percent of Focus savings were obtained from these process upgrades, which represented realizing over 41 percent of the annual potential—down slightly from the most recent *Semiannual Report* period. Another important contribution to Focus therm savings was in the market category of Commercial Boiler Replacement and Systems Improvements, up somewhat from the previous reporting period to 27 percent of therm savings, while the *Potential Study* suggests that about seven percent of annual therm savings potential is achievable in this market. Focus also continues to achieve savings that significantly exceed the estimated annual potential in the Agricultural upgrades markets.

Table 2-20. Comparisons of Focus Gas Energy Impacts (Net, First 12 Months of the 18-Month Contract Period, July 1, 2007–June 30, 2008) and Achievable Potential—Commercial & Industrial Markets

Market ID	Market	Annual Therm Potential - High	% of Therm Potential - High	Net Therm Savings	% of Therm Savings	% of Therm Potential Achieved
1.01	High Performance New Buildings	562,000	10.5%	14,723	0.3%	2.6%
2.01	Commercial Unitary HVAC Replacement and System Improvements	0	0.0%	123,082	2.7%	
4.01	Commercial Boiler Replacement and Systems Improvements	390,000	7.3%	1,233,330	27.1%	316.2%
6.01	Commercial Chiller Replacement and System Improvements	0	0.0%	660	0.0%	
7.01	Commercial Ventilation System Improvements	97,000	1.8%	7,619	0.2%	7.9%
8.01	Commercial Refrigeration System Improvements	0	0.0%	1,024	0.0%	
9.01	Industrial Motors: New, Replacement and Repair Market	0	0.0%	15,685	0.3%	
10.01	Industrial Compressed Air Systems Improvements	0	0.0%	512,420	11.3%	
13.01	Manufacturing Process Upgrades	4,229,000	79.2%	1,749,872	38.5%	41.4%
15.01	Agriculture Energy Efficiency	65,000	1.2%	234,817	5.2%	361.3%

Market ID	Market	Annual Therm Potential - High	% of Therm Potential - High	Net Therm Savings	% of Therm Savings	% of Therm Potential Achieved
70.00	Commercial Pumps			404	0.0%	
71.00	HVAC-Other			19,005	0.4%	
74.00	Commercial Dehumidification			-936	0.0%	
99.02	Savings not Mapped to Market			630,950	13.9%	
	Totals	**5,343,000**	**100.0%**	**4,542,656**	**100.0%**	**85.0%***

The 85.0 percent of potential achieved is the sum of savings in markets for which annual potential was estimated over the total potential, recognizing that some of the markets have significantly exceeded their estimated annual potential.

Red = Focus net savings are at least 66 percent of the estimated annual achievable potential
Yellow = Focus net savings are realizing 33 percent to 66 percent of the achievable potential
Green = Focus net savings are less than 33 percent of the achievable potential.

B. RESIDENTIAL MARKETS

Table 2-21 presents comparisons of Focus energy impacts and achievable potential for residential electric markets. For electric energy savings, incentives for CFLs continue to be the dominant market for energy savings, accounting for 55 percent of annual achievable potential. Focus savings have exceeded this potential with nearly 66 percent of energy savings for the 12-month period attributable to incentivized CFLs. The market with the second largest potential, Retailer Promotion of ENERGY STAR Consumer Electronics (14.7 percent of total kWh achievable potential), is not currently a market that Focus programs are targeting for savings. Overall, the residential programs has exceeded estimated annual potential in two markets—multi-family common area lighting (direct install market) and Incentives for Variable Speed Furnaces. They are capturing a significant proportion of the estimated annual market potential of three markets. Lighting fixtures is a market that was not included in the *Potential Study* but accounts for over four percent of residential programs electricity savings in fiscal year 2008.

Table 2-21. Comparisons of Focus Electric Energy Impacts (Net, First 12 Months of the 18-Month Contract Period, July 1, 2007–June 30, 2008) and Achievable Potential—Residential Markets

Market ID	Market	Annual kWh Potential - High	% of kWh Potential - High	Net kWh Savings	% of kWh Savings	% of kWh Potential Achieved
16.01	ENERGY STAR Marketing	417,000	0.2%	0	0.0%	0.0%
16.02	Retailer Promotion of ENERGY STAR Consumer Electronics	31,371,000	14.7%	0	0.0%	0.0%
17.01	Incentives for CFLs	117,230,000	55.0%	58,547,792	65.8%	49.9%
18.01	Multi-family Common Area Lighting—Direct Install Market	4,744,000	2.2%	4,418,725	5.0%	93.1%
19.01	Incentives For Variable Speed Furnaces	15,242,000	7.2%	10,556,471	11.9%	69.3%
20.00	Central AC/HVAC	4,946,000	2.3%	652,229	0.7%	13.2%
21.00	Multi-family Heating System Replacement			123,230	0.1%	
22.00	Room AC	1,582,000	0.7%	2,934	0.0%	0.2%
23.00	Homeowner Water Heater Purchases	9,313,000	4.4%	45	0.0%	0.0%
24.01	Incentives for Energy Efficient (EE) New Home Construction	732,000	0.3%	-3,651	0.0%	-0.5%
26.01	Dehumidifier Early Retirement	2,019,000	0.9%	500	0.0%	0.0%
27.00	Direct Install Market	13,713,000	6.4%	3,933,063	4.4%	28.7%

Market ID	Market	Annual kWh Potential - High	% of kWh Potential - High	Net kWh Savings	% of kWh Savings	% of kWh Potential Achieved
28.00	Shell Improvements including Remodeling (25.01)	4,582,000	2.2%	275,466	0.3%	6.0%
29.01	Incentives for Homeowner Clothes Washer Purchases	4,172,000	2.0%	2,556,461	2.9%	61.3%
30.01	Multi-Family Fuel Switching	2,909,000	1.4%	0	0.0%	0.0%
81.00	Refrigerators & Freezers			66	0.0%	
82.00	Lighting Fixtures			4,029,970	4.5%	
99.00	Savings not Mapped to Market			3,932,548	4.4%	
	Totals	**212,972,000**	**100.0%**	**89,025,848**	**100.0%**	**41.8%***

*The 41.8 percent of potential achieved is the sum of savings in markets for which annual potential was estimated over the total potential, recognizing that some of the markets have significantly exceeded their estimated annual potential.

Red = Focus net savings are at least 66 percent of the estimated annual achievable potential
Yellow = Focus net savings are realizing 33 percent to 66 percent of the achievable potential
Green = Focus net savings are less than 33 percent of the achievable potential.

As shown in Table 2-22, the market cited by the *Potential Study* as having the greatest achievable potential for residential natural gas therm savings is Incentives for Energy Efficient New Home Construction, estimated to contribute over 58 percent of total annual therm potential. Based on assignments of Focus measures to *Potential Study* markets, this market is now contributing 10 percent of the savings attributable to Focus. Focus is also accomplishing significant therm savings with Shell Improvements including Remodeling, where 13.8 percent of savings for the 2008 fiscal year were realized (about 12 percent of the estimated annual potential). Focus is achieving significant savings in the direct install market, with almost 30 percent of therm savings in the past 12 months occurring in this market (about 77 percent of the annual achievable potential).

The *Potential Study* suggests that there is important achievable potential in the Homeowner Water Heater Purchases market (11.5 percent of total therm savings potential) where for the recent 12-month period less than one percent of Focus residential therm savings were realized.

Table 2-22. Comparisons of Focus Gas Energy Impacts (Net, First 12 Months of the 18-Month Contract Period, July 1, 2007–June 30, 2008) and Achievable Potential—Residential Markets

Market ID	Market	Annual Therm Potential - High	% of Therm Potential - High	Net Therm Savings	% of Therm Savings	% of Therm Potential Achieved
19.01	Incentives For Variable Speed Furnaces	0	0.0%	227,180	14.0%	
21.00	Multi-family Heating System Replacement	833,000	7.1%	9,049	0.6%	1.1%
23.00	Homeowner Water Heater Purchases	1,344,000	11.5%	6,150	0.4%	0.5%
24.01	Incentives for Energy Efficient (EE) New Home Construction	6,884,000	58.7%	162,330	10.0%	2.4%
27.00	Direct Install Market	630,000	5.4%	482,936	29.7%	76.7%
28.00	Shell Improvements including Remodeling (25.01)	1,897,000	16.2%	223,860	13.8%	11.8%
29.01	Incentives for Homeowner Clothes Washer Purchases	140,000	1.2%	83,553	5.1%	59.7%
99.00	Savings not Mapped to Market			429,845	26.5%	
	Totals	**11,728,000**	**100.0%**	**1,624,904**	**100.0%**	**13.9%***

*The 13.9 percent of potential achieved is the sum of savings in markets for which annual potential was estimated over the total potential, recognizing that some of the markets have significantly exceeded their estimated annual potential.

Red = Focus net savings are at least 66 percent of the estimated annual achievable potential
Yellow = Focus net savings are realizing 33 percent to 66 percent of the achievable potential
Green = Focus net savings are less than 33 percent of the achievable potential.

C. RENEWABLE ENERGY MARKETS

Table 2-23 provides results for comparisons of estimated achievable potential and fiscal year 2008 Focus savings for renewable energy markets and their electric energy potential. This potential is dominated by Agriculture Anaerobic Digestion, contributing almost 60 percent of total achievable potential. The technologies in this market accounted for 57.5 percent of savings for the past 12 months, but this was less than one percent of the estimated annual potential. Customer-sited, grid-connected solar photovoltaics (PV) showed significant improvement since calendar year 2007 with over 29 percent of the kWh savings, representing almost 14 percent of the annual potential.

Table 2-23. Comparisons of Focus Electric Energy Impacts (Net, First 12 Months of the 18-Month Contract Period, July 1, 2007–June 30, 2008) and Achievable Potential—Renewables Markets

Market ID	Market	Annual kWh Potential - High	% of kWh Potential - High	Net kWh Savings	% of kWh Savings	% of kWh Potential Achieved
31.01	Customer-sited, Grid-connected, Commercial Solar Photovoltaics (PV)	263,000	1.2%	36,164	29.3%	13.8%
32.01	Commercial Solar Thermal (Hot Water)	0	0.0%	579	0.5%	
33.01	Residential Solar Thermal (Hot Water)	333,000	1.6%	4,225	3.4%	1.3%
35.01	Customer-sited, Gird-connected, Commercial Wind Energy	7,914,000	37.5%	11,562	9.4%	0.1%
36.01	Agriculture Anaerobic Digestion	12,583,000	59.7%	71,022	57.5%	0.6%
	Totals	**21,093,000**	**100.0%**	**123,552**	**100.0%**	**0.6%**

Red = Focus net savings are at least 66 percent of the estimated annual achievable potential
Yellow = Focus net savings are realizing 33 percent to 66 percent of the achievable potential
Green = Focus net savings are less than 33 percent of the achievable potential.

Focus is obtaining nearly all of its 2008 fiscal year therm savings from Agriculture Anaerobic Digestion and Wood Residue for Commercial/Institutional Heat projects (Table 2-24), although only one of these markets were addressed in the *Potential Study*. Another lesser, but still important, source of therm potential is Commercial Solar Thermal (Hot Water), which is projected to have 22 percent of the annual therm potential, but accounts for 5.5 percent of the program savings in fiscal year 2008.

Table 2-24. Comparisons of Focus Gas Energy Impacts (Net, First 12 Months of the 18-Month Contract Period, July 1, 2007–June 30, 2008) and Achievable Potential—Renewables Markets

Market ID	Market	Annual Therm Potential - High	% of Therm Potential - High	Net Therm Savings	% of Therm Savings	% of Therm Potential Achieved
32.01	Commercial Solar Thermal (Hot Water)	212,000	22.0%	12,410	5.5%	5.9%
33.01	Residential Solar Thermal (Hot Water)	26,000	2.7%	2,096	0.9%	8.1%
34.01	Wood Residue for Commercial/Institutional Heat	724,000	75.3%	147,395	65.3%	20.4%
36.01	Agriculture Anaerobic Digestion	0	0.0%	63,773	28.3%	
	Totals	**962,000**	**100.0%**	**225,674**	**100.0%**	**23.5%**

Red = Focus net savings are at least 66 percent of the estimated annual achievable potential
Yellow = Focus net savings are realizing 33 percent to 66 percent of the achievable potential
Green = Focus net savings are less than 33 percent of the achievable potential.

3. BUSINESS PROGRAMS EVALUATION

3.1 OVERVIEW OF KEY ACTIVITIES

This chapter describes our evaluation of the Business Programs during the first 12 months of the 18-month contract period (July 1, 2007, through June 30, 2008). This chapter summarizes the following:

- Reports delivered in the first 12 months of the 18-month contract period
- Energy impacts
- Deemed savings review—fall 2007 and spring 2008
- Upcoming evaluation activities for the remainder of the eighteen-month contract period.

3.2 REPORTS DELIVERED IN THE FIRST 12 MONTHS OF THE 18-MONTH CONTRACT PERIOD

- Semiannual Reports
  - Fiscal Year 07, Year End
  - Second Half of 2007
- Deemed Savings Review
  - Fall 2007: October 24, 2007
  - Spring 2008: May 21, 2008
- *Abbreviated FY07 Business Programs Impact Evaluation—Final memo*, February 18, 2008

3.3 ENERGY IMPACTS

In this section, we provide a summary of the FY07 abbreviated impact evaluation and estimates of tracked and untracked savings for the program to date.

3.3.1 FY07 Abbreviated Impact Evaluation

A. APPROACH

The evaluation team has implemented nine rounds of data collection and a document review to estimate net energy savings for Business Programs. The most recent round included measures installed between July 1, 2006, and June 30, 2007.

The impact analysis determines three adjustment factors to the savings reported by the program:

- Gross savings adjustment factor: This factor adjusts tracking gross savings for installation and changes based on 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.)

The definitions of these factors and the general methods for producing them for this round were essentially the same as in the previous rounds of impact evaluation for this program area. However, a modified sampling and analysis strategy was employed to provide updated adjustment factors at modest cost. We refer to this process as the Abbreviated Impact Analysis.

The Abbreviated Impact Analysis combines data collected from a sample of small and moderate size projects from the previous period (FY06 in this case) with data collected from a small number of large update-period (FY07) projects to provide an estimate for the update-period (FY07) program. The rationale for this approach is that the fundamental program operations were not substantially different between FY06 and FY07. As a result, empirical results from FY06 projects are generally likely to be indicative of FY07 performance also. However, idiosyncratic results for very large projects can swing the overall results for any particular period. We therefore relied on the results for "modest" size projects from FY06 to project effects for corresponding projects from FY07, but directly examined the very large projects for FY07 itself.

The adjustment factors shown in Tables 3-1 through 3-3 below are based on data collection and analysis of a sample of implemented projects. The data collection includes engineering interviews and decision-maker surveys with participating customers, and some onsite observations and monitoring for large projects. Site-specific analysis includes engineering review and if necessary modification of gross savings estimates, and determination of program attribution. Statistical analysis combines the individual results from the sample to generate program-level adjustment factors.

Between September and November 2007, KEMA collected data for a small sample of the largest projects completed in FY07. The five participants in each of the four sectors with the greatest FY07 savings[6] in that sector were solicited to participate in the sample. Thirteen of the twenty candidates agreed to do so.

The adjustment factors shown in the tables are based on this new data collection together with data from the previous sample of FY06 implementation. The largest projects from the FY06 sample were excluded from this analysis. This approach assumes that the net-to-gross components for all projects except for the largest are essentially the same in FY06 and FY07.

[6] Participant savings magnitude for sampling purposes is measured as total avoided costs, based on program tracked energy savings. Total avoided cost is calculated as the sum of avoided cost for all projects completed by the participant in FY07.

B. RESULTS

Overall, the Business Programs' achieved kWh, kW, and therm realization rates of 61 percent, 66 percent, and 39 percent, respectively. The realization rate is the ratio of achieved attributable savings to gross reported savings.

- The FY07 attribution rates are consistent with the rates achieved for FY06. The FY07 attribution factors for the program overall are 65 percent, 69 percent, and 58 percent for kWh, kW, and therms, respectively.
- FY07 gross savings adjustment factors for kWh, kW, and therms are 93 percent, 96 percent, and 67 percent, respectively. The gross savings adjustment factor adjusts gross reported savings for installation rates, tracking system data entry errors, and errors in gross savings calculations including corrections to input assumptions.

The tables below provide the new adjustment factors together with indicators of statistical precision, the 90% confidence interval, and sample sizes. The relative error (%) indicated for each confidence interval is the relative difference between the estimated percentage and the upper or lower confidence bound, not the absolute difference. The ± amount indicated for each confidence interval is the absolute difference in the estimated percentage. For example, the Commercial kWh attribution estimate in Table 3-2 is 72.2 percent, the 90% confidence interval is ± 9.7 percentage points (i.e., 72.2% ± 9.7% or 62.5% to 81.9%), and the relative precision (at 90 percent confidence) is 13.4 percent (9.7%/72.2%).[7]

Table 3-1 shows the FY07 gross savings adjustment factors by sector. The gross savings adjustment factors combine the installation rates and the engineering verification factors to adjust the tracking estimate of gross savings.

Table 3-1. FY07 Gross Savings Adjustment Factors by Sector

	kWh						kW						Therms					
		Gross Savings Adjustment Factor	90% Confidence Interval					Gross Savings Adjustment Factor	90% Confidence Interval					Gross Savings Adjustment Factor	90% Confidence Interval			
Segment	min n		Relative Error (%)	+/-	Lower Bound	Upper Bound	min n		Relative Error (%)	+/-	Lower Bound	Upper Bound	min n		Relative Error (%)	+/-	Lower Bound	Upper Bound
Agriculture	61	83%	20.1%	16.8%	66.5%	100.1%	59	82%	14.9%	12.2%	69.8%	94.2%	7	79%	24.3%	19.1%	59.5%	97.7%
Commercial	81	99%	3.0%	3.0%	96.1%	102.2%	77	100%	3.7%	3.7%	96.0%	103.4%	10	85%	17.7%	15.1%	70.3%	100.5%
Industrial	27	99%	1.7%	1.6%	97.2%	100.5%	24	99%	1.8%	1.8%	96.7%	100.3%	23	99%	2.0%	2.0%	97.4%	101.4%
Institutional	17	93%	6.1%	5.7%	87.4%	98.8%	14	98%	5.3%	5.2%	92.6%	103.0%	20	53%	55.2%	29.3%	23.8%	82.3%
Business Programs Overall	186	93%	4.4%	4.1%	89.1%	97.3%	174	96%	4.0%	3.9%	92.0%	99.8%	60	67%	30.5%	20.5%	46.7%	87.7%

The FY07 attribution factors by sector are provided in Table 3-2. The FY07 attribution factors for the program overall are 65 percent, 69 percent, and 58 percent for kWh, kW, and therms, respectively. These results are consistent with the FY06 results.

[7] The critical value for calculating the confidence interval ± for each adjustment factor is determined using Student's t distribution and n-1 for the degrees of freedom, where n is the sample size. The critical value for the Gross Savings Adjustment Factor and the Realization Rate is determined using the degrees of freedom based on the minimum sample size for the components of the adjustment factor. These two adjustment factors are products of other adjustment factors.

Table 3-2. FY07 Attribution Factors by Sector

	kWh						kW						Therms					
			90% Confidence Interval						90% Confidence Interval						90% Confidence Interval			
Segment	n	Attribution Adjustment Factor	Relative Error (%)	+/-	Lower Bound	Upper Bound	n	Attribution Adjustment Factor	Relative Error (%)	+/-	Lower Bound	Upper Bound	n	Attribution Adjustment Factor	Relative Error (%)	+/-	Lower Bound	Upper Bound
Agriculture	113	61%	14.5%	8.8%	51.9%	69.5%	104	55%	16.3%	9.0%	46.1%	64.1%	26	46%	23.9%	10.9%	34.7%	56.6%
Commercial	129	72%	13.4%	9.7%	62.5%	81.9%	109	77%	12.4%	9.5%	67.1%	86.0%	57	44%	29.2%	12.9%	31.4%	57.3%
Industrial	59	58%	25.4%	14.6%	42.9%	72.1%	53	54%	27.1%	14.7%	39.4%	68.7%	33	63%	24.7%	15.6%	47.5%	78.6%
Institutional	39	72%	32.7%	23.4%	48.2%	95.0%	29	85%	20.4%	17.2%	67.3%	101.8%	55	55%	42.4%	23.5%	32.0%	79.0%
Business Programs Overall	340	65%	13.5%	8.8%	56.6%	74.3%	295	69%	14.3%	9.8%	58.8%	78.4%	171	58%	20.7%	11.9%	45.6%	69.4%

Table 3-3 shows the FY07 realization rates by sector. The realization rates combine the effect of the gross savings adjustment factors and the attribution factors.

Table 3-3. FY07 Realization Rates by Sector

	kWh						kW						Therms					
			90% Confidence Interval						90% Confidence Interval						90% Confidence Interval			
Segment	min n	Realization Rate	Relative Error (%)	+/-	Lower Bound	Upper Bound	min n	Realization Rate	Relative Error (%)	+/-	Lower Bound	Upper Bound	min n	Realization Rate	Relative Error (%)	+/-	Lower Bound	Upper Bound
Agriculture	61	51%	24.9%	12.6%	38.0%	63.1%	59	45%	22.1%	10.0%	35.2%	55.2%	7	36%	36.0%	12.9%	23.0%	48.9%
Commercial	81	72%	13.8%	9.9%	61.7%	81.5%	77	76%	12.9%	9.9%	66.5%	86.3%	10	38%	36.2%	13.7%	24.2%	51.7%
Industrial	27	57%	26.0%	14.8%	42.1%	71.6%	24	53%	27.8%	14.8%	38.4%	68.0%	23	63%	25.1%	15.7%	46.9%	78.4%
Institutional	17	67%	34.3%	22.9%	43.8%	89.5%	14	83%	21.8%	18.0%	64.6%	100.7%	20	29%	70.4%	20.7%	8.7%	50.1%
Business Programs Overall	186	61%	14.2%	8.7%	52.3%	69.7%	174	66%	14.9%	9.8%	56.0%	75.6%	60	39%	37.0%	14.3%	24.4%	52.9%

3.3.2 Verified Tracked Energy Impacts

The estimates of the adjustment factors by sector are used to calculate verified gross savings and net savings. Multiplying tracking gross savings by the gross savings adjustment factor (which is the product of the installation rate and the engineering verification factor) alone yields verified gross savings.

For the first 12 months of the 18-month contract period (July 1, 2007, through June 30, 2008), Table 3-4a gives tracking and verified gross savings and net savings by sector and for Business Programs overall. These estimates are based on the savings tracked for this period with the most recent available adjustment factors. That is, the estimates of the adjustment factors by sector reported above are used to calculate verified gross savings and net savings for this time period. Verified gross savings and net savings for the first 12 months of the 18-month contract period will be updated when adjustment factors based on a sample of current contract period projects becomes available.

Table 3-4a. All Business Programs: Tracked Energy Impacts
First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)

Program	Gross kWh	Gross kW	Gross Therms	Verified kWh	Verified kW	Verified Therms	Net kWh	Net kW	Net Therms
Agriculture	21,663,846	5,597	651,886	17,982,668	4,590	515,116	11,053,391	2,519	234,817
Commercial	69,052,870	16,588	878,929	68,362,377	16,588	747,121	49,719,072	12,607	334,083
Industrial	100,882,337	15,673	5,216,773	99,873,514	15,516	5,164,605	57,502,932	8,307	3,286,567
Schools & Government	23,124,412	7,033	2,369,616	21,505,703	6,744	1,255,897	15,493,356	5,712	687,189
Total	**214,723,465**	**44,891**	**9,117,204**	**207,724,262**	**43,438**	**7,682,739**	**133,768,752**	**29,144**	**4,542,656**

Table 3-4b gives the same results for FY07 (July 1, 2006, through June 30, 2007). These estimates are based on the savings tracked for FY07, the adjustment factors from the most recent round of impact evaluation data collection are used to calculate the savings shown in Tables 3-4a and 3-4b.

Table 3-4b. All Business Programs: Tracked Energy Impacts
FY07 (July 1, 2006–June 30, 2007)

Program	Gross kWh	Gross kW	Gross Therms	Verified kWh	Verified kW	Verified Therms	Net kWh	Net kW	Net Therms
Agriculture	19,695,023	5,302	756,579	16,346,869	4,347	597,698	10,044,462	2,386	272,369
Commercial	51,717,511	11,736	1,489,990	51,200,336	11,736	1,266,491	37,236,608	8,919	566,196
Industrial	62,493,680	10,526	7,828,273	61,865,766	10,420	7,749,990	35,613,201	5,577	4,931,812
Schools & Government	23,223,397	5,884	3,584,081	21,597,759	5,766	1,899,563	15,559,676	4,884	1,039,384
Total	**157,129,610**	**33,447**	**13,658,924**	**151,010,730**	**32,269**	**11,513,743**	**98,453,946**	**21,766**	**6,809,760**

Tables 3-4c through 3-4g provide tracking and verified gross savings and net savings by program and for Business Programs overall for FY06 through FY02 (program start through June 30, 2002), respectively. Adjustment factors determined from the earlier rounds of similar data collection and analysis are used to calculate the savings for each of these program years. Estimates of the adjustment factors used to calculate verified gross savings and net savings for the earlier years are provided in the following reports:

- FY02: *Volume III, Impact Evaluation of the Business Programs Comprehensive Report*, December 23, 2002
- FY03: *Business Programs Impact Evaluation Report—Contract Year 2 Complete*, January 14, 2004
- FY04: *Business Programs Impact Evaluation Report—Year 3, Round 1*, June 17, 2004
- FY05: *Business Programs Impact Evaluation Report—FY05, Round 1,* September 9, 2005.
- FY06: *Business Programs Impact Evaluation Report*—FY06, March 2, 2007.

Table 3-4c. All Business Programs: Tracked Energy Impacts
FY06 (July 1, 2005–June 30, 2006)

Program	Gross kWh	Gross kW	Gross Therms	Verified kWh	Verified kW	Verified Therms	Net kWh	Net kW	Net Therms
Agriculture	10,369,560	2,554	169,600	10,784,342	2,375	162,816	5,495,867	1,047	98,368
Channel EHCI	720,371	649	363,389	719,198	671	336,265	266,434	291	284,833
Channel Lighting	44,199,666	10,821	2,572	40,406,474	10,358	2,526	29,273,759	7,775	1,589
Commercial	25,077,211	3,441	1,400,525	24,973,534	3,522	1,367,959	14,995,143	2,037	694,238
Industrial	36,584,840	6,477	5,203,226	40,318,839	6,979	5,261,531	32,142,582	5,342	1,951,784
Schools & Government	14,865,393	4,396	2,535,132	14,558,875	4,375	2,287,500	9,443,240	2,530	1,334,962
Total	**131,817,040**	**28,338**	**9,674,444**	**131,761,262**	**28,280**	**9,418,597**	**91,617,024**	**19,021**	**4,365,774**

Table 3-4d. All Business Programs: Tracked Energy Impacts
FY05 (July 1, 2004–June 30, 2005)

Program	Gross kWh	Gross kW	Gross Therms	Verified kWh	Verified kW	Verified Therms	Net kWh	Net kW	Net Therms
Agriculture	15,305,374	3,661	262,691	9,701,733	2,194	261,335	5,629,513	1,059	96,312
Commercial	44,218,407	9,807	1,018,331	30,703,691	6,529	920,120	18,924,532	3,871	275,075
Industrial	67,588,254	9,542	3,982,640	54,234,559	8,270	4,228,658	23,555,437	3,162	2,140,696
Schools & Government	16,595,676	4,067	1,780,566	16,078,481	3,908	1,695,159	7,751,733	1,878	951,559
Total	**143,707,711**	**27,077**	**7,044,228**	**110,718,465**	**20,901**	**7,105,272**	**55,861,214**	**9,970**	**3,463,641**

Table 3-4e. All Business Programs: Tracked Energy Impacts
FY04 (July 1, 2003–June 30, 2004)

Program	Gross kWh	Gross kW	Gross Therms	Verified kWh	Verified kW	Verified Therms	Net kWh	Net kW	Net Therms
Agriculture	16,000,309	3,541	81,250	11,105,756	2,876	63,415	5,889,700	1,550	53,368
Commercial	42,261,364	9,346	589,867	37,837,194	9,629	589,498	19,906,541	5,514	509,922
Industrial	80,264,260	11,792	8,611,077	69,713,833	7,524	10,127,720	40,260,298	4,113	8,828,403
Schools & Government	17,944,782	3,925	2,359,952	18,707,821	3,513	1,834,499	13,878,904	2,007	1,224,291
Total	**156,470,715**	**28,604**	**11,642,146**	**137,364,604**	**23,541**	**12,615,132**	**79,935,444**	**13,185**	**10,615,984**

Table 3-4f. All Business Programs: Tracked Energy Impacts
FY03 (July 1, 2002–June 30, 2003)

Program	Gross kWh	Gross kW	Gross Therms	Verified kWh	Verified kW	Verified Therms	Net kWh	Net kW	Net Therms
Agriculture	7,129,148	1,805	61,754	6,716,282	1,722	58,897	3,905,035	1,134	51,166
Commercial	39,232,419	9,477	1,167,849	36,381,429	7,866	1,197,427	17,650,457	4,633	872,738
Industrial	54,297,607	7,855	1,686,471	56,649,270	7,697	1,759,518	21,358,513	2,956	915,699
Industries of the Future	15,295,186	1,638	1,190,100	14,262,206	1,628	1,235,975	9,899,931		833,046
Renewables	0	0	701,849	0	0	678,278	0	0	677,718
Schools & Government	13,860,356	2,576	1,450,431	14,314,442	2,470	1,266,154	9,669,313	1,826	292,211
Total	**129,814,716**	**23,351**	**6,258,454**	**128,323,629**	**21,383**	**6,196,249**	**62,483,249**	**10,550**	**3,642,577**

Table 3-4g. All Business Programs: Tracked Energy Impacts
FY02 (July 1, 2001–June 30, 2002)

Program	Gross kWh	Gross kW	Gross Therms	Verified kWh	Verified kW	Verified Therms	Net kWh	Net kW	Net Therms
Agriculture	931,679	278	1,319	957,662	249	1,316	438,982	91	466
Commercial	7,989,934	1,947	1,359,460	7,929,764	1,287	491,392	3,949,903	613	173,848
Industrial	16,115,405	2,525	866,495	16,618,938	4,083	631,758	11,800,434	3,027	399,772
New Buildings	143,000	113	18,049	143,000	113	18,049	143,000	46	0
Schools & Government	5,379,917	2,102	515,218	4,882,794	1,304	598,213	2,432,174	621	211,640
Total	**30,559,935**	**6,965**	**2,760,541**	**30,532,158**	**7,036**	**1,740,729**	**18,764,493**	**4,397**	**785,725**

3.3.3 Verified Tracked Energy Impacts by Technology/End-use Categories and Business Programs Sector (Verified Gross)

The following tables present the verified gross energy impacts for Business Programs by sector (agricultural, commercial, industrial, and schools/government). For each sector, energy impacts are presented for July 1, 2007, through June 30, 2008. The tables also include a column that displays the percentage of total kWh, kW, or therm savings that comes from each technology or end-use category. The tables for each sector presented below break out the savings for that sector by measure category and indicate the percent of savings that measure category accounts for in that sector.

A. AGRICULTURAL

Table 3-5. Agricultural
First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)

Measure Category	Verified kWh	kWh %	Verified kW	kW %	Verified Therms	Therm %
Ag Specialty	1,544,804	9%	451	10%	392,127	76%
Air Conditioning	181	0%	0	0%	0	0%
Appliance-Other	245,583	1%	17	0%	-1,258	0%
Biomass	54,396	0%	3	0%	0	0%
Boiler/Other Heating	0	0%	0	0%	2,298	0%
Building Shell	3,967	0%	0	0%	7,996	2%
Ceiling Fan	145	0%	0	0%	0	0%
CFL	6,036,633	34%	1,527	33%	0	0%
Clothes Washer	2,010	0%	0	0%	100	0%
Clothes Washers Tier 2	5,355	0%	0	0%	32	0%
Clothes Washers Tier 3	4,502	0%	0	0%	115	0%
Compressor	221,013	1%	60	1%	0	0%
Controls	7,769	0%	0	0%	0	0%
Custom	33,530	0%	11	0%	0	0%
Energy Recovery	1,528,405	8%	452	10%	16,159	3%
Fuel Switching	871,222	5%	142	3%	-961	0%
Greenhouse	87,375	0%	3	0%	96,279	19%
Hot Water	873,122	5%	121	3%	3,406	1%
HVAC	2,553,180	14%	831	18%	-1,503	0%
Lighting Fixture	38,293	0%	10	0%	0	0%
Lighting-Other	744,188	4%	159	3%	0	0%
Motors & Drives	2,224,793	12%	615	13%	0	0%
Other	107,597	1%	25	1%	72	0%
Refrigeration	99,202	1%	30	1%	0	0%
Renewable	0	0%	0	0%	254	0%
T8/T5 Fluorescent Lighting	530,794	3%	124	3%	0	0%
Water Heating	164,609	1%	7	0%	0	0%
Total	**17,982,668**	**100%**	**4,590**	**100%**	**515,116**	**100%**

B. COMMERCIAL

Table 3-6. Commercial
First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)

Measure Category	Verified kWh	kWh %	Verified kW	kW %	Verified Therms	Therm %
Air Conditioning	221,610	0%	107	1%	0	0%
Appliance-Other	0	0%	0	0%	16,641	2%
Boiler/Other Heating	76,035	0%	0	0%	169,928	23%
Building Shell	177,602	0%	40	0%	186,006	25%
CFL	32,626,130	48%	9,350	56%	0	0%
Clothes Washer	6,400	0%	0	0%	1,834	0%
Clothes Washers Tier 2	1,450	0%	0	0%	50	0%
Clothes Washers Tier 3	2,142	0%	0	0%	89	0%
Compressor	51,437	0%	15	0%	0	0%
Controls	4,654,649	7%	351	2%	5,593	1%
Dehumidifier	49,647	0%	23	0%	-2,093	0%
Energy Recovery	352,255	1%	39	0%	59,601	8%
Food Service	165,930	0%	34	0%	11,859	2%
Furnace	73,700	0%	7	0%	16,466	2%
Geothermal	70,118	0%	3	0%	5,880	1%
Hot Water	206,966	0%	20	0%	13,949	2%
HVAC	3,292,066	5%	1,659	10%	134,992	18%
Lighting Fixture	116,522	0%	34	0%	0	0%
Lighting-LED	752,969	1%	78	0%	0	0%
Lighting-Other	5,405,043	8%	1,038	6%	0	0%
Motors & Drives	1,033,616	2%	128	1%	0	0%
Other	1,208,727	2%	311	2%	25,232	3%
Pump	219,092	0%	97	1%	0	0%
Refrigeration	5,038,138	7%	60	0%	0	0%
Refrigerator / Freezer	40,130	0%	7	0%	0	0%
Steam Trap	0	0%	0	0%	18,553	2%
Strip Curtain	54,932	0%	0	0%	0	0%
T8/T5 Fluorescent Lighting	11,880,872	17%	2,847	17%	0	0%
Torchiere	2,764	0%	0	0%	0	0%
Tune-up / Repair / Commissioning	329,135	0%	277	2%	49,945	7%
Vending Machine	111,575	0%	17	0%	0	0%
Water Heating	-297	0%	0	0%	12,591	2%
Wind	141,022	0%	48	0%	20,003	3%
Total	**68,362,377**	**100%**	**16,588**	**100%**	**747,121**	**100%**

C. INDUSTRIAL

Table 3-7. Industrial
First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)

Measure Category	Verified kWh	kWh %	Verified kW	kW %	Verified Therms	Therm %
Aeration System	1,468,187	1%	95	1%	0	0%
Air Conditioning	2,280	0%	4	0%	0	0%
Appliance-Other	110,573	0%	0	0%	0	0%
Boiler/Other Heating	-3,211,133	-3%	0	0%	1,213,504	23%
Building Shell	18,500	0%	0	0%	150,243	3%
CFL	309,394	0%	60	0%	0	0%
Compressor	18,223,434	18%	2,769	18%	54,462	1%
Computer Management	653,400	1%	0	0%	0	0%
Controls	2,447,581	2%	396	3%	177,405	3%
Energy Recovery	912,797	1%	86	1%	1,020,729	20%
Food Service	594	0%	0	0%	0	0%
Furnace	4,449	0%	1	0%	198,411	4%
Geothermal	-10,106	0%	1	0%	1,540	0%
HVAC	4,298,099	4%	597	4%	538,578	10%
Lighting Fixture	841	0%	0	0%	0	0%
Lighting-LED	100,336	0%	11	0%	0	0%
Lighting-Other	2,025,825	2%	297	2%	0	0%
Motors & Drives	16,851,421	17%	1,759	11%	24,648	0%
Other	7,388,006	7%	1,045	7%	415,257	8%
Process	1,838,378	2%	73	0%	630,088	12%
Process Heat	0	0%	0	0%	102,989	2%
Pulping	1,783,166	2%	210	1%	0	0%
Pump	5,140,423	5%	776	5%	0	0%
Refrigeration	298,480	0%	94	1%	0	0%
Steam Trap	0	0%	0	0%	316,243	6%
T8/T5 Fluorescent Lighting	35,124,289	35%	6,614	43%	0	0%
Tune-up / Repair / Commissioning	4,081,628	4%	627	4%	320,462	6%
Vending Machine	12,457	0%	1	0%	0	0%
Water Heating	216	0%	0	0%	45	0%
Total	**99,873,514**	**100%**	**15,516**	**100%**	**5,164,605**	**100%**

D. SCHOOLS/GOVERNMENT

Table 3-8. Schools/Government
First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)

Measure Category	Verified kWh	kWh %	Verified kW	kW %	Verified Therms	Therm %
Ag Specialty	0	0%	0	0%	1,112	0%
Air Conditioning	2,184	0%	4	0%	0	0%
Appliance-Other	43,943	0%	21	0%	-150	0%
Boiler/Other Heating	11,964	0%	2	0%	240,421	19%
Building Shell	36,403	0%	0	0%	149,621	12%
CFL	5,015,556	23%	1,252	19%	0	0%
Compressor	82,807	0%	21	0%	0	0%
Computer Management	93,000	0%	0	0%	0	0%
Controls	713,823	3%	136	2%	75,696	6%
Custom	0	0%	0	0%	18,859	2%
Energy Recovery	914	0%	0	0%	4,419	0%
Food Service	111,898	1%	38	1%	5,467	0%
Furnace	7,052	0%	1	0%	1,043	0%
Geothermal	0	0%	0	0%	13,916	1%
Hot Water	24,604	0%	16	0%	8,936	1%
HVAC	3,910,351	18%	2,584	38%	133,332	11%
Lighting Fixture	8,834	0%	2	0%	0	0%
Lighting-LED	2,479,580	12%	301	4%	0	0%
Lighting-Other	2,173,405	10%	363	5%	3,419	0%
Motors & Drives	1,362,229	6%	65	1%	458	0%
Other	463,546	2%	338	5%	20,798	2%
Pump	101,309	0%	14	0%	0	0%
Refrigerator / Freezer	3,358	0%	1	0%	0	0%
Steam Trap	0	0%	0	0%	127,667	10%
T8/T5 Fluorescent Lighting	4,219,587	20%	1,073	16%	0	0%
Tune-up / Repair / Commissioning	596,057	3%	514	8%	443,986	35%
Vending Machine	43,299	0%	0	0%	0	0%
Water Heating	0	0%	0	0%	5,267	0%
Wind	0	0%	0	0%	1,628	0%
Total	**21,505,703**	**100%**	**6,744**	**100%**	**1,255,897**	**100%**

3.3.4 Program Targets and Accomplishments

Gross program savings as verified by evaluation are shown in the following table along with the program goals and percentage of goal achieved. Savings shown are as of June 30, 2008, or twelve months of an 18-month target period.

Table 3-9. Verified Business Program Savings versus Business Program Portfolio Targets First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)

	kWh			kW			Therms		
Program	Target	Net	% of 18-month Target	Target	Net	% of 18-month Target	Target	Net	% of 18-month Target
Agriculture	30,000,000	11,053,391	37%	6,375	2,518	39%	750,000	234,816	31%
Commercial	87,750,000	49,719,072	57%	18,375	12,606	69%	1,050,000	334,083	32%
Industrial	127,500,000	57,502,932	45%	18,750	8,306	44%	6,000,000	3,286,567	55%
Schools & Government	27,000,000	15,493,356	57%	7,500	5,711	76%	2,700,000	687,188	25%
Total Business Programs	**272,250,000**	**133,768,751**	**49%**	**51,000**	**29,143**	**57%**	**10,500,000**	**4,542,655**	**43%**

3.4 DEEMED SAVINGS

The deemed savings work is an ongoing collaborative effort between KEMA and the We Energies evaluation team. In 2006, the evaluation teams developed a database of deemed kW and kWh values for prescriptive measures that are included in the statewide programs and We Energies' Nonresidential Prescriptive Rebate and Comprehensive Agriculture programs. Subsequent to this initial effort, KEMA has taken the lead in reviewing measures with therm savings.

Each round prior to PSCW approval of the final database of deemed values, the evaluation teams and the implementers reach consensus on discrepancies that arise during the implementers review of the draft database. Two rounds of deemed savings work was conducted in FY07. The first round was completed in October 2006 and the second in April 2007.

The *Contract Period One Detailed Evaluation Plan* included one round of deemed savings review. This round was planned for fall 2008, with the updated values taking effect on January 1, 2009. Following discussions with the program, the PSCW directed KEMA to implement three rounds of deemed savings review during this 18-month contract period. The first round was completed in October 2007, with the values being applied retroactively to the start of the current contract period (i.e., July 1, 2007).

The second round of FY08 deemed savings review was completed in May 2008. The new PSC approved deemed savings adjustments are valid for any energy savings measure installed on May 1, 2008, or afterwards. Table 3-10 provides a summary of the 178 measures[8] included in the review and approved by the PSC.

[8] A measure is defined at the WISeerts tech code level. WISeerts is the statewide energy efficiency tracking database developed and managed by the PSC.

Table 3-10. Measure Categories Reviewed and Approved by PSC

Measure Group	Measure Category	# WISeerts Tech Codes
Boilers & Burners	Boiler	2
	Steam Trap	4
Food Service	Dishwasher, Commercial	20
	Refrigerator / Freezer, Commercial	12
	Steamer	1
HVAC	Fan	9
	Furnace	11
	Packaged Terminal Unit (PTAC, PTHP)	16
	Rooftop Unit / Split System AC	66
	Steam Trap	1
Plug Loads	Vending Machine	2
Process	Specialty Pulp & Paper	1
Refrigeration	Controls	5
	Motor	2
	Refrigerated Case Door	3
Lighting	Controls	1
	Fluorescent, Compact (CFL)	1
	Fluorescent, Linear	18
	High Intensity Discharge (HID)	3
Total		**178**

The third round of FY08 deemed savings review is planned for October 2008.

3.5 UPCOMING EVALUATION ACTIVITIES

In this section, we briefly describe upcoming evaluation activities. For more information on these activities, refer to the *Contract Period One Detailed Evaluation Plan.*

- Impact Evaluation: KEMA will conduct two more rounds of impact evaluation data collection during this contract period.
  - Round 2: This round will cover measures implemented during the first nine months of this contract period (July 1, 2007, through March 31, 2008). It will be a full impact evaluation similar to those conducted in previous years.
  - Round 3: The final round of impact evaluation will use an abbreviated approach similar to that used for the FY07 Abbreviated Impact Evaluation. It will cover measures implemented between April 1, 2008, and September 30, 2008. This timing will allow additional large current projects to be included in the determination of the final set of adjustment factors for the 18-month contract period.
- Additional Looks at Attribution: In addition to generating sector-level adjustment factors for purposes of determining overall program performance, we will also produce a separate report analyzing the attribution factors by customer and/or measure characteristics. We have provided similar reports in previous years.

- Deemed Savings Review: KEMA will conduct one more round of deemed savings review.
  - Round 3: Proposals due to KEMA by September 30, 2008, with agreed values due to the PSCW for final approval by October 31, 2008.
- Channel Studies: We will conduct channel studies for the lighting, rotary, and HVAC channels. The primary purpose of these studies is to establish baselines for the contract metrics. These studies will not be incorporated into the NTG calculation. However, they will seek qualitative evidence to support the need for further supply-side research.
- Pre-rinse Sprayer Protocol: KEMA will assist the Commercial Sector in assessing the energy savings attributable to pre-rinse sprayers. We will work with the sector to develop a protocol to collect field measurements. The sector will be responsible for collecting the data. KEMA will be responsible for analyzing the data and recommending revisions to the deemed savings values if appropriate.
- E&T Participant Spillover Study: This study will develop an estimate of the rate of energy savings attributable to Focus due to measures implemented as a result of E&T or other support program, but not already tracked by Focus or accounted for in the implementing partner spillover estimate. This study will be limited to the effects of Focus on participants in these program components.
- Benefit Cost Inputs: A benefit cost analysis is scheduled for all Focus programs this contract period. As part of this effort KEMA will:
  - Provide input streams for the Business Programs.
  - Develop market effects projections.
  - Conduct an incremental cost study with the intent of obtaining incremental costs for the prescriptive measures that account for the majority of prescriptive savings, and secondarily for large custom measures in the engineering sample. KEMA is conducting this study in partnership with WECC.
- Review of Load Shapes: KEMA will review load shapes proposed by WECC for particular categories of measures. These load shapes can be used for program planning and may be used in future evaluations.

For further information, including recommended program improvements, the reader is referred to the following recent evaluation reports.

Table 3-11. Further Business Programs Reading

Time Period	Date	Title
FY07	4/20/2007	*Business Programs: End-use Specific Attribution Factors - FY06*
	4/13/2007	*Final Deemed Savings for FY08 (Spring 2007)*
	3/2/2007	*Business Programs: Impact Evaluation Report - FY06*
	11/10/2006	*Business Programs: Lighting and Motor/Drive Channel Market Effects Contract Metrics Assessment*
	10/27/2006	*Deemed Savings Resolution (Fall 2006)*
FY06	6/21/2006	*Business Programs: A Behind-the-Scenes Look at Attribution*
	6/12/2006	*Business Programs: Targeted Market Study: HVLS Fans on Wisconsin Dairy Farms*
	4/5/2006	*Business Programs: Recent Customer Experience*
	4/4/2006	*Business Programs: Delivery Review*
	3/16/2006	*Net-to-Gross Method Selection Framework for Evaluating Focus on Energy Programs*
	2/3/2006	*Business Programs: Measure Review*
	12/30/2005	*Focus on Energy Public Benefits Evaluation BP Motors Metric Preliminary Assessment*
	12/22/2005	*Business Programs: Participant Spillover Savings Study*
	10/28/2005	*Business Programs: End-use Specific Adjustment Factors*
	9/9/2005	*Business Programs: Impact Evaluation Report—FY05, Round 1*

4. RESIDENTIAL PROGRAMS EVALUATION

This chapter describes the residential program evaluation activities finalized during the period July 1, 2007–June 30, 2008, overall and by individual program area.

- ENERGY STAR® Products (Composed of Residential Lighting and Appliance and Plug Load
- Wisconsin ENERGY STAR Homes
- Home Performance with ENERGY STAR
- Apartment and Condominium Efficiency Services
- Targeted Home Performance with ENERGY STAR
- Efficient Heating and Cooling (This was made into its own program in July 2006.)
- Head Start CFL (A new program in 2008)

4.1 OVERALL

The following tables present the gross, verified gross, and net energy savings summary by Residential program area for:

a. First 12 Months of the 18-Month Contract Period: July 1, 2007, through June 30, 2008
b. FY07: July 1, 2006, through June 30, 2007
c. FY06: July 1, 2005, through June 30, 2006
d. FY05: July 1, 2004, through June 30, 2005
e. FY04: July 1, 2003, through June 30, 2004
f. FY03: July 1, 2002, through June 30, 2003
g. FY02: June 1, 2001, through June 30, 2002, (although FY02 of the program covered a 15-month period, significant energy savings were not recognized in the first two months of that period).

The discussion of each individual program includes tables on the energy savings totals and any new research to modify verified gross energy savings or net energy savings numbers.

Table 4-1a. All Residential Programs: Tracked Energy Impacts
First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)

Program	Gross kWh	Gross kW	Gross Therms	Verified kWh	Verified kW	Verified Therms	Net kWh	Net kW	Net Therms
ACES	12,576,682	1,021	1,018,583	12,549,810	1,102	939,932	11,546,658	1,008	939,932
EHCI	11,146,239	3,227	319,817	11,205,069	2,980	300,182	11,205,069	2,980	300,182
ENERGY STAR – Appliances	3,131,046	43	130,517	2,977,046	31	135,415	2,977,046	31	135,415
ENERGY STAR – Lighting	76,719,778	4,543	0	76,702,769	4,548	0	62,571,795	3,531	0
Head Start	5,967	0	0	5,967	0	0	5,967	0	0
HPES	346,473	191	244,133	346,632	208	244,445	324,517	194	231,694
THPES	418,392	0	94,420	418,392	74	103,545	418,392	74	103,545
WESH	-2,497	0	162,460	-2,497	0	162,460	-2,497	0	162,460
Total	**104,342,080**	**9,026**	**1,969,930**	**104,203,188**	**8,942**	**1,885,980**	**89,046,946**	**7,817**	**1,873,229**

Table 4-1b. All Residential Programs: Tracked Energy Impacts
FY07 (July 1, 2006–June 30, 2007)

Program	Gross kWh	Gross kW	Gross Therms	Verified kWh	Verified kW	Verified Therms	Net kWh	Net kW	Net Therms
ACES	1,467,617	413	400,607	1,465,272	413	400,607	1,465,272	413	400,607
EHCI	9,269,479	2,984	274,826	8,901,254	2,189	275,126	7,207,259	1,970	231,410
ENERGY STAR	82,661,232	5,287	284,080	67,459,724	3,946	188,033	54,488,066	3,178	152,675
HPES	392,348	214	345,909	371,121	230	298,510	346,397	214	282,629
THPES	435,080	0	107,675	435,080	77	107,675	435,080	77	107,675
WESH	24,892	1	153,767	24,456	0	153,727	24,032	0	153,715
Total	**94,250,649**	**8,899**	**1,566,864**	**78,656,907**	**6,855**	**1,423,678**	**63,966,107**	**5,852**	**1,328,711**

Table 4-1c. All Residential Programs: Tracked Energy Impacts
FY06 (July 1, 2005–June 30, 2006)

Program	Gross kWh	Gross kW	Gross Therms	Verified kWh	Verified kW	Verified Therms	Net kWh	Net kW	Net Therms
ACES	5,848,481	469	537,436	5,848,481	469	537,436	5,848,481	469	537,436
EHCI	11,430,586	8,388	258,196	10,980,716	7,122	274,194	9,467,141	6,927	235,134
ENERGY STAR	71,467,984	4,808	338,317	55,957,557	3,250	147,693	55,620,278	3,252	120,461
HPES	995,068	373	484,986	734,891	366	374,559	708,195	347	357,685
THPES	371,904	0	92,366	371,904	66	92,040	371,904	66	92,040
WESH	77,532	14	147,666	73,655	12	147,386	66,852	5	147,274
Total	**90,191,555**	**14,051**	**1,858,967**	**73,967,204**	**11,284**	**1,573,308**	**72,082,851**	**11,064**	**1,490,030**

Table 4-1d. All Residential Programs: Tracked Energy Impacts
FY05 (July 1, 2004–June 30, 2005)

Program	Gross kWh	Gross kW	Gross Therms	Verified kWh	Verified kW	Verified Therms	Net kWh	Net kW	Net Therms
ACES	16,662,736	846	790,191	16,662,736	846	790,191	16,662,736	846	790,191
ENERGY STAR	85,100,179	2,480	362,822	55,286,483	3,231	156,956	66,079,110	3,929	127,292
HPES	9,084,502	6,901	582,559	8,804,317	6,948	491,823	8,586,575	6,457	476,796
THPES	593,163	115	167,477	288,277	44	69,503	288,277	44	69,503
WESH	1,507,010	669	221,526	1,236,066	671	217,666	1,198,958	612	217,280
Total	**112,947,590**	**11,011**	**2,124,576**	**82,277,879**	**11,739**	**1,726,139**	**92,815,657**	**11,887**	**1,681,062**

Table 4-1e. All Residential Programs: Tracked Energy Impacts
FY04 (July 1, 2003–June 30, 2004)

Program	Gross kWh	Gross kW	Gross Therms	Verified kWh	Verified kW	Verified Therms	Net kWh	Net kW	Net Therms
ACES	10,798,028	558	510,518	10,636,906	553	512,758	10,636,906	553	512,758
ENERGY STAR	99,145,698	6,507	354,587	64,241,338	4,619	354,683	62,403,648	4,310	354,683
HPES	13,606,210	8,038	554,150	13,557,990	8,063	481,219	13,510,885	8,044	463,522
THPES	708,507	148	220,606	418,019	62	107,214	418,019	62	107,214
WESH	1,615,776	628	185,255	1,623,130	631	184,477	1,623,070	631	184,477
Total	**125,874,219**	**15,879**	**1,825,116**	**90,477,383**	**13,928**	**1,640,352**	**88,592,528**	**13,600**	**1,622,655**

Table 4-1f. All Residential Programs: Tracked Energy Impacts
FY03 (July 1, 2002–June 30, 2003)

Program	Gross kWh	Gross kW	Gross Therms	Verified kWh	Verified kW	Verified Therms	Net kWh	Net kW	Net Therms
ACES	10,507,165	2,312	991,358	14,778,157	2,346	1,286,496	14,778,157	2,346	1,286,496
ENERGY STAR	76,054,937	5,738	180,788	64,995,155	5,429	180,788	55,518,927	3,834	180,788
HPES	9,385,086	5,919	334,938	9,469,824	5,914	288,290	9,446,776	5,905	279,625
THPES	183,949	58	85,943	130,604	41	61,020	130,604	41	61,020
WESH	1,274,434	71	102,037	314,141	89	91,261	306,104	89	91,261
Total	**97,405,572**	**14,098**	**1,695,064**	**89,687,881**	**13,820**	**1,907,855**	**80,180,568**	**12,217**	**1,899,190**

Table 4-1g. All Residential Programs: Tracked Energy Impacts
FY02 (June 1, 2001–June 30, 2002)

Program	Gross kWh	Gross kW	Gross Therms	Verified kWh	Verified kW	Verified Therms	Net kWh	Net kW	Net Therms
ACES	2,577,687	514	382,451	2,437,663	479	382,451	2,437,663	479	382,451
ENERGY STAR	18,295,376	1,806	55,519	20,239,649	2,542	55,519	14,916,810	1,649	55,519
HPES	3,059,372	1,644	404,564	3,059,354	1,644	396,942	2,714,057	1,635	315,322
THPES	15,598	5	6,971	11,075	3	4,949	11,075	3	4,949
WESH	0	0	63,249	204,624	0	72,201	204,624	0	72,201
Total	**23,948,033**	**3,969**	**912,755**	**25,952,365**	**4,668**	**912,062**	**20,284,229**	**3,766**	**830,443**

Gross program savings unadjusted by evaluation results are shown in the following table along with the program targets and percentage of target achieved. Savings shown are as of June 30, 2008, or the first 12 months of an 18-month target period.

Table 4-2. Net Residential Program Savings versus Residential Program Portfolio Targets First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)

	kWh			kW			Therms		
Program	Target	Net	% of 18-month Target	Target	Net	% of 18-month Target	Target	Net	% of 18-month Target
ACES	19,154,025	11,546,658	60%	2,235	1,007	45%	1,825,973	939,932	51%
EHCI	13,958,476	11,205,069	80%	4,964	2,979	60%	511,125	300,182	59%
ENERGY STAR – Appliances	2,821,500	2,977,046	106%	105	30	29%	110,250	135,415	123%
ENERGY STAR – Lighting	85,457,267	62,571,794	73%	5,581	3,530	63%	0	0	0%
HeadStart	2,160,450	5,966	0%	62	0	0%	0	0	0%
HPES	1,192,994	324,516	27%	476	193	41%	755,303	231,694	31%
THPES	1,215,840	418,392	34%	195	73	37%	300,900	103,545	34%
WESH	414,449	-2,497	0%	33	0	0%	396,450	162,460	41%
Total Residential Programs	**126,375,000**	**89,046,946**	**70%**	**13,650**	**7,816**	**57%**	**3,900,000**	**1,873,228**	**48%**

4.2 ENERGY STAR PRODUCTS

Evaluation efforts during the second half of 2007 focused on the following:

- Conducting a CFL installation rate study[v]
- Reviewing CFL savings estimates[vi]
- Measuring program metrics.[vii]

Key findings from evaluation efforts conducted during this reporting period are presented below for each of the following four areas:

- Process findings and issues
- Verified energy impacts
- Market effects
- Program metrics and goals.

4.2.1 Process Findings and Issues

We did not formally include process related evaluation tasks as part of our *Contract Period One Detailed Evaluation Plan*. The evaluation team, however, stayed abreast of process related issues through monitoring of program changes and issues based on regular communications with the ESP program manager.

4.2.2 Verified Energy Impacts

We conducted two research projects to update the energy savings estimates for CFLs. First, the evaluation team analyzed the types of CFLs installed during FY07 to assess if the current

estimate of *Delta Watts*—a key input to calculating verified gross energy and demand savings for CFLs rewarded through the Residential Lighting Program (RLP)—is still appropriate. Based on the assessment, we recommended revising the *Delta Watts* estimate from 51.9 W to 53.3 W for CFLs purchased via instant rewards and 55.0 W for CFLs purchased via mail-in rewards.

Second, the evaluation team conducted a CFL installation rate study for CFLs rewarded during FY07. The primary purpose of this installation rate study was to quantify the rate at which CFLs rewarded through the FY07 initiative are being installed in Wisconsin residences. We found that installation rates, currently at 81 percent for instant rewards and 88 percent for mail-in rewards, have significantly improved over the past four years. This improvement would appear to demonstrate that limiting the number of rewarded CFLs an individual can purchase results in higher first year installation rates and, therefore, higher first year energy savings within the state of Wisconsin. The improvement in first year installation rates is also likely to be influenced by the expansion in the types of CFLs available. Thus, consumers today are able to find CFLs for applications where they were not previously available (e.g., globes, a-lines, indoor/outdoor floods). The survey information also indicates that participating Wisconsin residents, the ultimate sponsors of the Focus initiative, continue to be satisfied with the CFLs they have received through the program.

In addition to improving installation rates, the program continues to demonstrate success in reaching a substantial number of Wisconsin residents who never purchased CFLs before. In FY03 and FY05, we found that approximately two-thirds of participants had never purchased a CFL prior to their program involvement. Jumping ahead to this FY07 study, it seems reasonable—relative to the previous studies—to expect decreasing percentages of current year CFL program participants to have never purchased CFLs before. In FY07, we found that this percentage had, indeed, decreased to about 55 percent (i.e., approximately 55 percent of participants had never purchased a CFL prior to their involvement in the FY07 program). However, with 150,000+ program participants, this still means that the program reached over 80,000 households that had not purchased CFLs before.

Like previous studies, this FY07 study also found that the program is reaching a diverse group of purchasers (those with somewhat lower incomes and education) who have been historically under-represented both in CFL programs in particular and in energy efficiency programs in general—again, a significant accomplishment. Finally, like previous studies, we continue to see a substantial amount of CFL purchasing reportedly taking place after participants' recent program experience. This would appear to signal that the program was having some participant market effects—at least in the short-term.

The implication of all this positive outreach is that the program is continuing to broaden the Wisconsin market for CFLs, which would appear to bolster the likelihood of the program having beneficial long-term market effects. However, it is important to keep in mind that the influence the program is having on retailer marketing, CFL stocking, and pricing may be a temporary phenomena. Thus, until rewards are substantially reduced (or ended), or substantial lapses in time occur between reward periods, it will remain difficult to reliably assess lasting long-term market effects.

The tables for each sector presented below break out the savings for that sector by measure category and indicate the percent of savings that measure category accounts for in that sector.

Table 4-3. ENERGY STAR - Appliances Products Program: Tracked Energy Impacts First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)

Measure Category	Verified kWh	kWh %	Verified kW	kW %	Verified Therms	Therm %
Appliance-Other	431,970	15%	30	98%	52,500	39%
Clothes Washers	1,063,258	36%	0	0%	35,170	26%
Clothes Washers Tier 2	598,489	20%	0	0%	19,506	14%
Clothes Washers Tier 3	882,763	30%	0	0%	28,239	21%
Dehumidifier	500	0%	1	2%	0	0%
Refrigerator	66	0%	0	0%	0	0%
Total	**2,977,046**	**100%**	**31**	**100%**	**135,415**	**100%**

Table 4-4. ENERGY STAR - Lighting Products Program: Tracked Energy Impacts First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)

Measure Category	Verified kWh	kWh %	Verified kW	kW %	Verified Therms	Therm %
Ceiling Fan	34,125	0%	0	0%	0	0%
CFL	72,672,799	95%	4,474	98%	0	0%
Lighting Fixture	1,565,824	2%	60	1%	0	0%
Lighting-LED	2,012,845	3%	0	0%	0	0%
Lighting-Other	132,392	0%	5	0%	0	0%
Torchiere	284,784	0%	8	0%	0	0%
Total	**76,702,769**	**100%**	**4,548**	**100%**	**0**	**0%**

4.2.3 Market Effects

The metric measurement process provided some findings related to ESP market effects. These findings are summarized next in the *Program Metrics and Goals* section. We also have conducted two studies to provide insights into the CFL market. The first is a Comprehensive CFL Market Effects Study, which has the following primary objectives:

- To determine whether or not (and the extent to which) market effects are occurring in the Wisconsin CFL market;
- To help evaluators and program staff understand the mechanisms that are either contributing to or taking away from the program's ability to achieve market effects; and
- To enhance the evaluation team's ability to provide reliable estimates of the net effects of the overall retail-based CFL initiative in all sectors: residential, commercial, agricultural, and multifamily.

The second is CFL Customer Research, which has the following primary objectives:

- To measure Wisconsin consumers' awareness, use, and purchasing of CFLs and other residential lighting products (e.g., mainly incandescent light bulbs) and compare and contrast this information with that of a control area.
- To find out where Wisconsin consumers are currently purchasing lighting products (both incandescents and CFLs) and how these purchasing patterns match the venues through which CFL rewards are being paid.

- To explore customer perception of and satisfaction with CFLs, which household member(s) purchase CFLs vs. other types of lighting, and the importance of price (and price sensitivity) in the purchasing process.

- To attempt to gather information pertaining to the number of sockets in a home, the number of those sockets that have CFLs installed, and the likelihood that installed incandescents will ever be replaced by CFLs.

Because the two reports from these studies are still going through the review process, results from these two studies are not discussed in this semiannual report.

4.2.4 Program Metrics and Goals

We address the ESP metric we measured below. We include a brief description of the metric, an overview of our measurement approach, and results.

Description

Increase the number of CFLs and other lighting products (fixtures, lamps) sold through special promotions with new retailer types (drug, grocery, lighting showroom, and mass merchant) by 5 percent from the total sales during FY06.

Measurement Approach

The evaluation team measured this metric by analyzing the program database to compare the distribution of CFLs by retailer type in FY07 to the distribution in FY06.

Results

Our analysis indicates that the Residential Lighting Program has met the goal for this metric. In FY07, 84,567 CFLs were sold through drug, grocery, lighting showroom, and mass merchant retailer types, compared to 50,465 CFLs in FY06 (Table 4-5). This represents a 68 percent increase, which exceeds the metric goal of a 5 percent increase.[viii] A combination of expanded efforts in the grocery channel (a springtime CFL promotion with a major grocery chain) and increased sales among existing retailers led to the program exceeding its metric goal.

Table 4-5. CFLs Sales by Drug, Grocery, Lighting Showroom, and Mass Merchant Retailer Types

Retailer Type	FY06	FY07
Drug	13	79
Grocery	22,255	45,638
Lighting Showroom	13,041	19,254
Mass Merchant	15,156	19,596
Total	**50,465**	**84,567**

4.3 WISCONSIN ENERGY STAR HOMES

Evaluation efforts conducted during this reporting period focused on measuring Wisconsin ENERGY STAR Homes (WESH) program metrics.[ix] Key findings from this effort are presented below for the each of the following four areas:

- Process findings and issues
- Verified energy impacts
- Market effects
- Program metrics and goals.

4.3.1 Process Findings and Issues

We did not formally include process related evaluation tasks as part of our *Contract Period One Detailed Evaluation Plan*. The evaluation team, however, stayed abreast of process related issues through monitoring of program changes and issues based on regular communications with the WESH program manager.

4.3.2 Verified Energy Impacts

We did not plan any energy impact evaluation tasks for this reporting period. The table below shows energy impacts for WESH program activity.

Table 4-6. Wisconsin ENERGY STAR Homes: Tracked Energy Impacts
First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)

Measure Category	Verified kWh	kWh %	Verified kW	kW %	Verified Therms	Therm %
Building Shell	-2,497	100%	0	0%	162,227	100%
Water Heating	0	0%	0	0%	233	0%
Total	**-2,497**	**100%**	**0**	**0%**	**162,460**	**100%**

4.3.3 Market Effects

The metric measurement process provided some findings related to WESH market effects. These findings are summarized next in the *Program Metrics and Goals* section.

4.3.4 Program Metrics and Goals

We address the WESH metric we measured below. We include a brief description of the metric, an overview of our measurement approach, and results.

Description

Increase new builder participation (as defined by a 10 percent increase in the number of certified homes associated with new builders annually).

Measurement Approach

The evaluation team measured this metric by analyzing the program database to compare the number of WESH homes certified by new builders in FY06 and FY07. A builder is classified as a new builder in FY07 if the builder had certified less than three homes through the end of FY06. Similarly, a builder is classified as a new builder in FY06 if the builder had certified less than three homes through the end of FY05.[x]

Results

Our analysis indicates that WESH has met this metric. In FY07, 147 new builders certified 328 homes, compared to 223 homes certified by 123 new builders in FY06. This represents a 47 percent increase, which exceeds the metric goal of a 10 percent increase. To shed light on why the program met its goal, we looked at the distribution of the number of homes certified among new builders during FY07 and compared this to the distribution of the number of homes certified among new builders during FY06 (Table 4-7).

Table 4-7. Number of Homes Certified by New Builders in FY06 and FY07

# of Homes Certified	New Builders			
	FY06		FY07	
	#	%	#	%
1	81	66%	96	65%
2	23	19%	28	19%
3	9	7%	6	4%
4-5	4	3%	7	5%
6-9	4	3%	5	3%
10-14	2	2%	3	2%
25-29	0	0%	2	1%
Total	**123**	**100%**	**147**	**100%**

During FY07, the program added two new builders who each certified 28 homes. During FY06, the highest volume new builder certified only 14 homes. This, along with the fact that the program also added builders in the 4–5, 6–9, and 10–14 volume ranges, contributed to the program meetings its goal.

4.4 HOME PERFORMANCE WITH ENERGY STAR

Evaluation efforts conducted during this reporting period focused on measuring Home Performance with ENERGY STAR (HPWES) and Efficient Heating and Cooling (EHC) program metrics.[xi]

Key findings from this effort are presented below for the each of the following four areas:

- Process findings and issues
- Verified energy impacts
- Market effects
- Program metrics and goals.

4.4.1 Process Findings and Issues

We did not formally include process related evaluation tasks as part of our *Contract Period One Detailed Evaluation Plan*. The evaluation team, however, stayed abreast of process related issues through monitoring of program changes and issues based on regular communications with the program manager.

4.4.2 Verified Energy Impacts

We conducted two studies to address ECM furnace impacts during the first half of 2008. The first is ECM Furnace Fan Operation Research, which updates research conducted previously in FY04 to assess furnace fan operation among participants who installed ECM furnaces rewarded through EHC. This research is important because the way in which people operate their furnace fans has significant ramifications on ECM furnace impacts. The second is a Net-to-Gross Savings Adjustment for ECM Furnaces, which focuses on updating (and improving) the net-to-gross estimates of energy and demand savings for ECM furnaces established as part of previous evaluation activities.

Because we are still in the process of analyzing the results from these two research efforts, results from these two studies are not discussed in this semi-annual report.

The table below shows energy impacts for HPWES program activity for the first twelve months of the 18-month contract period.

Table 4-8. Existing Homes: Tracked Energy Impacts
First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)

Measure Category	Verified kWh	kWh %	Verified kW	kW %	Verified Therms	Therm %
Building Shell	296,427	86%	204	98%	236,714	97%
HVAC	10,800	3%	1	0%	840	0%
Other	0	0%	0	0%	1,053	0%
Water Heating	39,405	11%	3	1%	5,838	2%
Total	**346,632**	**100%**	**208**	**100%**	**244,445**	**100%**

4.4.3 Market Effects

The metric measurement process provided some findings related to market effects. These findings are summarized next in the *Program Metrics and Goals* section.

4.4.4 Program Metrics and Goals

We measured two contract metrics for HPWES. For each metric, we include a brief description of the metric, an overview of our measurement approach, and results.

HPWES - FY07 METRIC #1

Description

Retain 90 percent of consultants and qualified contractors that enter the program after training.

Measurement Approach

The evaluation team measured this metric by analyzing the program database to assess trends in program activity for each consultant and qualified contractor.

Results

Our analysis indicates that HPWES has not met this metric. During FY06, 52 consultants and qualified contractors provided services through the program. Ten of these 52 did not provide services through the program in FY07. This represents a retention rate of 81 percent, which is less than the metric goal of 90 percent. An investigation into the reasons why this group of ten consultants and qualified contractors did not continue to provide services in FY07 was not planned as part of this analysis. We did, however, look at the number of assessments and ratings performed by this group and found lower activity levels. This group comprised about 20 percent of consultants and qualified contractors who provided services during FY06 but only accounted for three percent of assessments and ratings performed during FY06.

HPWES - FY07 METRIC #2

Description

Increase the number of referrals received by consultants and qualified contractors from remodeling/home improvement companies to 300 in FY07.

Measurement Approach

The evaluation team measured this metric by analyzing the program database to assess trends in number of referrals received by consultants and qualified contractors from remodeling/home improvement companies.

Results

Our analysis indicates that HPWES has met this metric. During FY07, a total of 386 referrals were received from remodeling/home improvement companies (Table 4-9). This exceeds the metric goal of 300. The program exceeded its goal primarily due to increased activity among remodelers and insulation allies.

Table 4-9. Number of Referrals Received from Remodeling/Home Improvement Companies

Company Type	Period of Program Activity				
	FY03	FY04	FY05	FY06	FY07
Remodeler	15	69	75	76	223
Ally—HVAC	17	9	11	13	40
Ally—Insulation	1	6	27	43	104
Ally-Other	0	3	3	2	19
Total	**33**	**87**	**116**	**134**	**386**

4.5 APARTMENT AND CONDOMINIUM EFFICIENCY SERVICES

The Apartment and Condominium Efficiency Services (ACES) program consists of a whole building existing and a new construction component. Each component contains both prescriptive and custom incentives. The custom incentive structure has two tiers for both existing building and new construction projects, with the Tier 2 incentives based on implementation of multiple incentive categories to encourage more comprehensive installations. In June 2008, the Residential Housing Energy Efficiency Program (RHEEP) for two-to three-unit rental properties started site assessments under the ACES umbrella.

Through June 30, 2008, ACES accounted for 53 percent of the total net therm savings for all of the residential programs combined, 11 percent of the net kW, and 13 percent of the net kWh savings. In terms of ACES program targets, through June 30, 2008 (twelve months through the 18-month period) ACES had achieved the following net savings as a percent of its program target: kWh 60 percent, kW 45 percent, and therms 51 percent (Table 4-2).

Evaluation efforts through June 2008 focused on reviewing and finalizing deemed savings values and their underlying assumptions for the following measures:

- Whole Building Existing, In Unit Direct Install—CFL replacement
- Whole Building Existing, In Unit Direct Install—Low-flow showerheads
- Whole Building Existing, In Unit Direct Install—Faucet Aerators
- Whole Building Existing, Whole Building—Prescriptive CFL, cold cathode, or LED lamp replacement
- Whole Building Existing, Whole Building—90+ efficiency modulating boiler replacements
- New Construction—Common Area Lighting
- New Construction—90+ efficiency modulating boiler replacements.

The evaluation efforts also included designing and submitting a participant survey to the PSCW and WECC for review and comment. This instrument addressed both process and impact issues.

Key findings efforts are presented below for each of the following four areas:

- Process findings and issues
- Verified energy impacts
- Market effects
- Program metrics.

4.5.1 Process Findings and Issues

We did not formally include process related evaluation tasks as part of our *Contract Period One Detailed Evaluation Plan*. The evaluation team, however, stayed abreast of process related issues through monitoring of program changes and issues based on communications

with the ACES program manager and implementation contractors. The upcoming participant survey will collect limited process information.

4.5.2 Verified Energy Impacts

WECC is applying deemed savings from their other business and residential programs to similar measures installed under the prescriptive track. Savings for measures installed under the custom/whole building track are being calculated by the implementation contractors. During the fourth quarter of 2007 and continuing into 2008, the evaluation team obtained the deemed savings estimates and their underlying assumptions from WECC and reviewed the savings being used to estimate gross energy impacts for major prescriptive measures listed earlier. The final deemed savings evaluation report was submitted in June 2008. WECC implemented the recommended deemed savings amounts in their database in June 2008, retroactive beginning May 1, 2008. The following measure values were changed as a result of the deemed savings review:

- Direct install CFLs: No change in the deemed savings value of 43.5 kWh/year. The rate of 3.1watts/lamp for peak demand load reduction should be increased to 4.2 watts/lamp.
- Low flow showerheads: Increase therm savings from 25 to 27.2 therms/year and decrease kWh from 553 to 544.8 kWh/year. These adjustments reflect the changing baseline assumptions and the inclusion of the average multi-family household size to estimate the number of showers daily.
- Faucet aerators: Both kWh and therm savings were revised as shown below.

Table 4-10. Changes to Default Deemed Savings for Low Flow Faucet Aerators

Application	Prior Annual Default Energy Savings	Revised Annual Default Energy Savings
Faucet Aerator - Bath – Electric	160.8 kWh	127.1 kWh
Faucet Aerator - Bath – Gas	10 therms	6.3 therms
Faucet Aerator - Kitchen – Electric	158.8 kWh	223.1 kWh
Faucet Aerator - Kitchen – Gas	10 therms	11.1 therms

- Prescriptive lamp replacements: The prior energy savings value used by ACES was 215 kWh/year/lamp, and these savings were not differentiated among the lighting types. The revised energy savings differentiate by lighting type as follows:
  - For direct replacement of incandescents with CFLs in common areas, the revised default deemed savings value was increased to 407 kWh/year and the default peak demand load reduction was reduced from 47 to 41.5 watts/lamp.
  - For replacement of incandescent or standard fluorescent exit signs with LED or other low-energy types, the revised deemed savings value is 272 kWh/year and the peak demand load savings is 31 watts/fixture.
  - For all other retrofits, it was recommended that the savings be calculated based on the actual reduction in watts achieved per fixture (DW) and either 12 or 24 hours/day operation depending on whether the application was daylight controlled. The deemed savings would be either 4.38 x DW (kWh/yr) or 8.76 x DW (kWh/yr) accordingly. The peak load demand reduction would be either zero or DW.

- 90% modulating boiler replacements: Calculation of a single deemed savings value for multi-family building boiler replacements would be highly uncertain without good statistical data on the sizes of boilers being installed. We recommended using a Deemed Savings Multiplier (DSM) to convert the installed boiler capacity to a deemed savings (see Table 2-3 in the ACES Default Deemed Savings Review Report for these multipliers). We are working with WECC to determine how this can be applied based on data in the database.

The verified tracked energy impacts by program initiative and measure category for July 1, 2007, through June 30, 2008, are shown in Table 4-11.

Table 4-11. Apartment and Condominium Efficiency Services: Tracked Energy Impacts First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)

Measure Category	Verified kWh	kWh %	Verified kW	kW %	Verified Therms	Therm %
Air Conditioning	22,714	0%	53	5%	0	0%
Boiler/Other Heating	853,811	7%	58	5%	314,581	33%
Building Shell	245,218	2%	114	10%	39,527	4%
CFL	370,227	3%	50	5%	0	0%
Clothes Washer	57,888	0%	0	0%	7,520	1%
Dehumidifier	50	0%	0	0%	0	0%
Dishwasher	34,414	0%	0	0%	2,258	0%
ECM Furnace	6,100	0%	1	0%	160	0%
HVAC	24,290	0%	-2	0%	62,773	7%
Lighting-LED	642,732	5%	126	11%	0	0%
Lighting-Other	5,269,836	42%	510	46%	0	0%
Motors & Drives	123,887	1%	27	2%	0	0%
Other	63,098	1%	36	3%	26,012	3%
Refrigerator	46,538	0%	4	0%	0	0%
Water Heating	4,789,008	38%	124	11%	487,102	52%
Total	**12,549,810**	**100%**	**1,102**	**100%**	**939,932**	**100%**

4.5.3 Market Effects

The evaluation will undertake data collection to quantify participant spillover in the impact analyses for the New Construction and Existing Building Programs in the upcoming participant survey.

4.5.4 Program Metrics

ACES has no program contract metrics.

4.6 TARGETED HOME PERFORMANCE WITH ENERGY STAR

Table 4-12. Targeted Home Performance with ENERGY STAR: Tracked Energy Impacts First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)

Measure Category	Verified kWh	kWh %	Verified kW	kW %	Verified Therms	Therm %
Other	418,392	100%	74	100%	103,545	100%
Total	**418,392**	**100%**	**74**	**100%**	**103,545**	**100%**

4.7 EFFICIENT HEATING AND COOLING

4.7.1 Program Metrics and Goals

EHC - FY07 METRIC #1

Description

Increase in market share for 90+ furnaces with ECM by 2 percentage points as compared to the baseline set in FY06.

Measurement Approach

The evaluation team measured this metric by analyzing trends in annual ECM furnace market share as reported by information in the Energy Center of Wisconsin's (ECW) Furnace and AC Tracking (FACTS) reports. These reports provide market-based information on current and historic sales trends of residential furnaces sold in Wisconsin by distributors who agree to provide data to ECW.[xii]

Results

Our analysis indicates that EHC has not met its goal for this metric. In FY07, ECM market share was 25.9 percent, compared to 26.2 percent in FY06 (Table 4-9). This represents a 0.3 percentage point decrease, which does not meet the metric goal of a two-percentage point increase.[xiii] We do not have information available to reach a conclusion as to why ECM market share fell between FY06 and FY07.

Table 4-13. ECM Furnace Market Share

Period	ECM Furnaces	All Furnaces	Market Share
FY06	14,651	56,000	26.2%
FY07	13,119	50,588	25.9%

Table 4-14. Efficient Heating and Cooling: Tracked Energy Impacts
First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)

Measure Category	Verified kWh	kWh %	Verified kW	kW %	Verified Therms	Therm %
Adjustment	-3,117	0%	2	0%	194	0%
Air Conditioning	431,387	4%	968	32%	0	0%
Boiler/Other Heating	0	0%	0	0%	61,348	20%
ECM Furnace	10,556,471	94%	1,476	50%	227,180	76%
HVAC	220,328	2%	533	18%	11,460	4%
Total	**11,205,069**	**100%**	**2,980**	**100%**	**300,182**	**100%**

4.8 HEAD START CFL

Table 4-15. Head Start CFL: Tracked Energy Impacts
First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)

Measure Category	Verified kWh	kWh %	Verified kW	kW %	Verified Therms	Therm %
CFL	5,967	100%	0	100%	0	0%
Total	**5,967**	**100%**	**0**	**100%**	**0**	**0%**

5. RENEWABLE ENERGY PROGRAM EVALUATION

5.1 OVERVIEW/KEY ACTIVITIES

This chapter describes the evaluation activities for the Renewable Energy Program conducted between July 1, 2007, and June 30, 2008. This chapter summarizes the following:

- Reports
- Gross energy impacts
- Net energy impacts
- Upcoming evaluation activities for this contract period (ending March 2009).

5.1.1 Reports Delivered in the First Half of 2008

During the first half of 2008, the Renewable Energy evaluation team submitted the following reports:

- *Semiannual Report (Fiscal Year 07, Year End)*
- *Renewable Energy Program Standard Calculation Recommendations (draft: June 20, 2008)*

5.2 GROSS ENERGY IMPACTS

5.2.1 Program Activities

In this section, we discuss the projects implemented for FY07 and the period from July 1, 2007, to June 30, 2008. In FY07, the program increased the total number of renewable energy system installations for the fifth consecutive fiscal year (see Table 5-1), completing a total 122 renewable energy projects. A total of 43 nonresidential and 79 residential installations were funded by the program between July 1, 2006, and June 30, 2007 (FY07). This increase in projects for FY07 is due to a large increase in the number of PV installations, particularly in the residential sector. PV installations dominate the residential sector and comprise over 40 percent of the nonresidential projects. The total of 92 PV installations in the fiscal year was an increase of 61 percent over FY06 PV installations. Installations of wind machines were the same as installations for FY06, while, biogas system installations declined.

From July 1, 2007, to June 30, 2008, the first 12 months of the current contract period, the program installed 227 projects. This is an 86 percent increase in the number of projects installed during the 12-month period of FY07. The mix of projects is somewhat different in this 12-month period. PV systems still comprise the largest number of projects installed in the last 12 months, and non-residential PV installations are more than double the number installed in FY07. Residential solar water heating, which became part of the Renewables program in FY07,[9] comprises 22 percent overall and 32 percent of residential projects for this period.

[9] Prior to FY07 Solar water heating was offered as part of the Focus on Energy Residential program.

Table 5-1. Projects Implemented by Type and Year

Technology	Completed Projects						
	FY02/FY03 Mar 02–Jun 03	FY04 Jul 03–Jun 04	FY05 Jul 04–Jun 05	FY06 Jul 05–Jun 06	FY07 Jul 06–Jun 07	First 12 months of the 18-month Contract Period (Jul 07–Jun 08)	Program To Date
Nonresidential Projects							
Biogas	0	1	4	7	2	2	16
Thermal Bioenergy	0	3	7	16	14	10	50
Solar Electric	3	3	9	9	18	43	85
Solar Water Heating	0	0	4	5	6	17	32
Wind Machine	2	2	5	1	1	4	15
Hydroelectric	1	0	1	0	0	0	2
Other	0	0	1	1	2	0	4
All Nonresidential	**6**	**9**	**31**	**39**	**43**	**76**	**204**
Residential Projects							
Solar Electric (PV)	20	40	35	48	74	75	292
Solar Water Heating[a]	-	-	-	-	-	70	70
Wind Machine	1	8	2	5	5	6	27
Other	0	0	1	1	0	0	2
All Residential	**21**	**48**	**38**	**54**	**79**	**151**	**391**
All Projects	**27**	**57**	**69**	**93**	**122**	**227**	**595**

[a] Residential Solar Water Heating was included and tracked in the Focus on Energy Residential program until FY07. This table includes only those projects completed through the Focus Renewable Energy program.

5.2.2 Program-reported Gross Energy Impacts

The program tracks gross energy savings (generation) for all projects completed that receive a Cash-Back Reward or a grant that has associated energy impacts. The program-reported gross impacts are provided in Table 5-2 by technology and segment for FY06, FY07, and the period from July 1, 2007, to June 30, 2008.

As of June 2008, the program-reported overall impacts for the current contract period are lagging behind FY07. Program-reported kW and kWh savings for this 12-month period are 63 and 30 percent (respectively) of the FY07 totals. Therm savings are also lower, at 71 percent of FY07 totals. Residential program installations for this 12-month period have exceeded tracked savings totals from the prior year.

Non-residential program installations for this 12-month period vary by technology, relative to the prior year. Tracked installations and program savings for solar electric, solar water heating and wind machines exceed these figures for the prior year. The number of biogas projects (two) is the same as the prior year, but tracked electric savings for this technology are substantially lower because one of the two projects did not include electric generation.

Bioenergy (biomass) projects and the associated savings are lagging behind the prior year. Biogas and bioenergy projects are generally large installations that involve a substantial lag

time between commitment and completion (approximately 15 months). Until Act 141 the program lacked the ability to systematically commit funding to projects beyond the current annual budget, which may have affected the flow of commitments. This points to challenges for long-term projects in a program with annual budgets and goals. (While the budget challenge is addressed in Act 141, the goals are still annual.) Most large projects in process (committed but not completed) were started after March 2007, when the program shifted to larger incentives and could commit funds available in future contract periods. The program has been closely monitoring the progress of these projects and anticipates completing up to eight large biogas and biomass projects before the end of the contract year (December 2008). The lags in completion of these projects are due mostly to construction delays and production/availability issues with generator sets for biogas systems.

Table 5-2. Renewable Energy Program-reported Gross Impacts[10] by Segment and Technology

Segment	Technology	Energy Impacts	Completed			
			FY06 Jul 05– Jun 06	FY07 Jul 06– Jun 07	Jul 07– Jun 08	Program To Date
Nonresidential	Biogas	Kilowatts	1,586	1,045	230	5,161
		Annual kilowatt-hours	12,366,960	8,238,780	1,511,100	41,044,046
		Annual therms	75,488	0	138,637	247,290
	Thermal Bioenergy	Kilowatts	0	0	0	0
		Annual kilowatt-hours	0	0	0	0
		Annual therms	1,982,546	684,448	320,424	3,483,106
	Solar Electric	Kilowatts	24	124	272	484
		Annual kilowatt-hours	29,643	153,422	340,509	606,611
		Annual therms	0	0	0	1,283
	Solar Water Heating	Kilowatts	0	0	0	0
		Annual kilowatt-hours	0	0	12,324	12,324
		Annual therms	13,708	2,697	26,978	63,863
	Wind Machine	Kilowatts	65	90	26	507
		Annual kilowatt-hours	83,600	109,560	43,125	715,299
		Annual therms	0	0	0	0
	Hydroelectric	Kilowatts	0	0	0	1,300
		Annual kilowatt-hours	0	0	0	6,473,600
		Annual therms	0	0	0	0
	Other	Kilowatts	0	14	0	14
		Annual kilowatt-hours	0	29,973	0	29,973
		Annual therms	102	1,480	0	2,638
	All Nonresidential	**Kilowatts**	**1,675**	**1,273**	**528**	**7,467**
		Annual kilowatt-hours	**12,480,203**	**8,531,735**	**1,907,058**	**48,881,853**
		Annual therms	**2,071,844**	**688,625**	**486,039**	**3,798,180**

[10] Gross energy impacts are those reported in the program tracking system maintained by WECC.

Table 5-2. Renewable Energy Program-reported Gross Impacts[11] by Segment and Technology

Segment	Technology	Energy Impacts	Completed			
			FY06 Jul 05– Jun 06	FY07 Jul 06– Jun 07	Jul 07– Jun 08	Program To Date
Residential	Solar-PV and Thermal[12]	Kilowatts	135	224	334	848
		Annual kilowatt-hours	177,638	290,398	435,737	1,112,935
		Annual therms	0	0	0	3,776
	Solar Water Heating[13]	Kilowatts	-	-	0	0
		Annual kilowatt-hours	-	-	89,894	89,894
		Annual therms	-	-	4,556	4,556
	Wind Machine	Kilowatts	106	40	113	382
		Annual kilowatt-hours	123,346	51,353	196,072	566,446
		Annual therms	0	0	0	0
	Other	Kilowatts	0	0	0	0
		Annual kilowatt-hours	-15,545	0	0	-15,545
		Annual therms	1,881	0	0	2,253
	All Residential	**Kilowatts**	**241**	**264**	**447**	**1,230**
		Annual kilowatt-hours	**285,439**	**341,751**	**721,703**	**1,753,730**
		Annual therms	**1,881**	**0**	**4,556**	**10,585**
TOTAL	**All Projects**	**Kilowatts**	**1,916**	**1,537**	**974**	**8,697**
		Annual kilowatt-hours	**12,765,642**	**8,873,486**	**2,628,761**	**50,635,583**
		Annual therms	**2,073,725**	**688,625**	**490,595**	**3,808,766**

5.3 NET ENERGY IMPACTS

5.3.1 Approach

The evaluation team estimates net energy savings for the Renewable Energy Program on an annual basis. The most recent round of data collection to determine net energy savings included renewable energy projects installed between July 1, 2006, and June 30, 2007 (FY07).

The impact analysis determines three adjustment factors to the gross savings reported by the program:

- *Gross savings adjustment factor*: This factor adjusts tracked gross savings for installation and changes based on engineering review. Applying the gross savings

[11] Gross energy impacts are those reported in the program tracking system maintained by WECC.

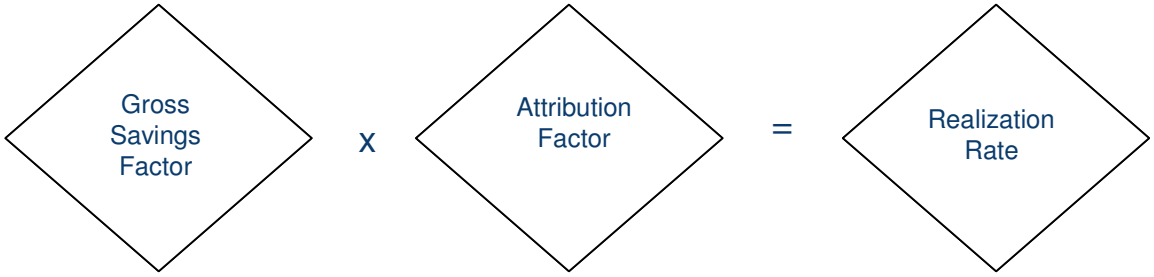
[12] Prior to July 2007, "Solar PV and Thermal" included residential PV installations and projects that combine PV with solar thermal technologies. The therm savings are from both the combined projects and PV installations that were off-grid and displacing fossil fuel generators on-site.

[13] Solar water heating projects were switched from the Residential to the Renewable Program beginning in FY07.

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 tracked gross savings.)

Figure 5-1. Realization Rate Calculation



The definitions of these factors and the methods for producing them are the same as in all previous Renewable Impact Evaluations. The reporting of the results in this Semiannual Report are the same as in the previous two rounds of impact evaluation for the Renewable Program. This section includes results that have not been reported previously. They were revised from the draft of this report based on comments from the program and follow-up analysis. The results of the impact evaluation are reported in the semiannual reports instead of a stand-alone document[14], as has been done for the past two years, to save evaluation resources for analytical tasks.

5.3.2 Overall Findings

Final fiscal year energy impacts are determined following the end of the fiscal year. Thus, final FY07 adjustment factors were calculated during the last half of 2007 based on all projects completed in FY07. They are based on engineering reviews and surveys with a sample of program participants to calculate net energy impacts for all projects completed in that fiscal year.

This report also includes estimated net energy impacts for projects completed in the period from July 1, 2007, to June 30, 2008, based upon the final FY07 adjustment factors. The final net energy impacts for the current program period will be calculated after the end of the current contract period. (The evaluation team will calculate net energy impacts for the current contract period in the first quarter of 2009.) In this report, we present the final FY07

[14] Focus on Energy Evaluation Team. *Focus on Energy Evaluation: Contract Period One Detailed Evaluation Plans.* August 6, 2007 (Revised).

adjustment factors, final FY07 energy impacts, and estimated energy impacts for the period from July 1, 2007, to June 30, 2008, using the final FY07 adjustment factors.[15]

The overall results of this analysis are reported below in Table 5-3. In section 5.3.3, we discuss the development of the realization rate for FY07. In section 5.3.4, we discuss the application of the FY07 adjustment factors to projects completed between July 1, 2007, and June 30, 2008. These estimated net impacts are reported in Table 5-3.

Table 5-3. Renewable Energy Program-Reported Gross, Evaluation-Verified Gross, and Verified Net Impacts

Time Period	Kilowatt-hours			Kilowatts			Therms		
	Gross	Verified Gross	Verified Net	Gross	Verified Gross	Verified Net	Gross	Verified Gross	Verified Net
FY02: Mar 02–Jun 02	536	545	440	0.48	0.41	0.32	0	0	0
FY03: Jul 02–Jun 03	3,659,120	3,718,437	3,005,052	707	604	478	1,686	1,713	1,385
FY04: Jul 03–Jun 04	516,495	484,151	448,980	217	220	195	106,943	213,834	199,754
FY05: Jul 04–Jun 05	22,191,543	21,909,710	4,256,338	3,343	3,261	984	447,192	343,622	88,276
FY06: Jul 05–Jun 06	12,765,642	13,042,016	2,350,819	1,916	1,874	386	2,073,725	2,066,494	459,285
FY07: Jul 06–Jun 07	8,873,486	8,515,648	420,003	1,539	1,871	350	688,625	673,425	315,121
Jul 07–Jun 08[a]	2,628,761	2,479,691	669,819	974	930	404	490,595	479,555	171,294
Total	**50,635,583**	**50,150,198**	**11,151,451**	**8,697**	**8,761**	**2,799**	**3,808,766**	**3,778,644**	**1,235,114**

[a] FY07 technology specific net adjustment factors were applied. When technology specific factors for a specific type of savings were not available, the technology specific adjustment factors for the other type of energy savings were applied.

5.3.3 Final FY07 Net Energy Impacts

This section presents the results of the FY07 impact evaluation.

The objective of this analysis was two-fold. The first objective was to verify the data that had been entered into the program tracking database to produce *gross savings adjustment factors*. Gross savings factors are based on verification of installation (Installation Rate) and an engineering review (resulting in an Engineering Verification Factor) of the reported savings for projects installed between July 1, 2006, and June 30, 2007.

[15] We anticipate higher realization rates for the current contract period (for large projects) due to program changes in eligibility and incentive levels. The evaluation team did not conduct a planned interim evaluation of large projects because the program has not yet completed any hydroelectric projects in this contract year.

The second objective was to determine the *realization rate* for the program. The realization rate is the percentage of program reported impacts that can be attributed to the program. The realization rate is a function of the gross savings adjustment factor combined with the attribution factor, which subtracts out estimated free-ridership. Free-ridership calculations are based on participant reports of program effect on their decision to install a renewable energy system. For instance, the program could have:

- Been the main factor in the decision to install
- Accelerated the timing of the installation
- Changed the size of the system installed
- Had no impact on a pre-existing intention to install the measure[16].

Data used in the net impact analysis came from several sources.

- Program-reported savings for each measure were obtained directly from the Renewable Energy Program tracking database.
- The evaluation team requested additional information from program staff for each completed measure. This included detailed paperwork associated with the project application and some conversations clarifying the status of some projects. This information was used as a basis for the engineering verification.
- We conducted telephone interviews with participants completing 29 percent of the measures and representing 96 percent of kWh, 83 percent of kW, and 98 percent of therms savings reported by the program. These are very high proportions of savings. The interviews verified installation details, assessed the extent to which the project implementation was attributable to the Focus Renewable Energy Program, and covered some general issues associated with participating in the program and installing a renewable energy measure. KEMA completed interviews with 35 of 36 participants contacted for a response rate of 97 percent. A copy of the interview protocol is included as Appendix D.
- We verified the information provided in the program documentation (measure, size, and other key variables) and then reviewed the engineering calculations for reasonableness and consistency. We discuss the engineering calculations in more detail below.

A. INSTALLATION RATE

We confirmed the installation of 100 percent of the equipment for the sampled.

B. ENGINEERING VERIFICATION FACTOR

The overall engineering verification factors are high for the Renewables program. Program level engineering verification resulted in 96 percent for kWh, 122 percent for kW, and 98

[16] There are ongoing discussions about changes to net-to-gross survey questions and approaches to calculating acceleration effects. These discussions did not affect the methods or reporting approach used in this study due to timing.

percent for therms. In Table 5-4 below, we provide the engineering verification factors for each of the technology categories.

Table 5-4. Engineering Verification Factors by Technology

Technology	kWh	kW	Therms
Biogas	97%	144%	
Biomass			98%
PV Residential	101%	76%	
PV Commercial	100%	77%	
Solar Water Heating			100%
Wind	53%	100%	
Other	46%	97%	100%
Overall	**96%**	**122%**	**98%**

i. Overall Engineering Verification

The engineering verification factors overall for electric energy, electric demand, and therms are high. The variation in engineering factor results, however, was also high across (and within some) technologies. Solar electric (PV) and solar water heating calculations were internally consistent, well documented and consistent with both KEMA's approach and final estimates[17].

We identified the following overall issues with the reported gross savings estimates:

Poor documentation. For some technologies, and specific projects within other technologies, we did not find sufficient documentation of the approach Focus used to estimate savings.

Incorrect database information. In some cases, the Focus paper records included calculations and estimates that were closer to the estimates calculated by KEMA, but the Focus database was not updated to include these estimates. We also found projects that were incorrectly categorized by sector. For example, the WECC PV project is listed in the database as a residential project.[18]

Inconsistent calculations. The calculations for some technologies, especially biomass, were inconsistent and not grounded in standard engineering approaches.

KEMA is currently finalizing "Standard Calculation Recommendations" that develop consistent approaches for calculating generation and therm savings associated with Focus projects.

C. REALIZATION RATE

Table 5-5 below reports the overall final adjustment factors for FY07. These factors are based on a sample of projects completed in FY07 (July 1, 2006–June 30, 2007). The resulting gross savings adjustment factors combined with the attribution factor are used to determine the net

[17] With the exception of the PV program using DC, instead of AC rated capacity.

[18] We have since worked with WECC to identify the source of the discrepancy and believe that this issue has been resolved.

program impacts. These numbers were calculated by technology and then aggregated to program level factors for electric energy (kWh), electric demand (kW), and fossil fuels (therms).[19] The calculation of the technology and overall program factors is weighted by the size of the project, so projects (and technologies) that account for a large amount of savings count more than projects that have small savings. The resulting net adjustment factors were then applied to all projects completed in FY07, resulting in the final net energy impacts of the Focus Renewable Program for FY07.

Table 5-5. Final Net Adjustment Factors for FY07

Adjustment Factor	kWh				kW				Therms			
			Margin of Error (90% confidence)				Margin of Error (90% confidence)				Margin of Error (90% confidence)	
	n[a]	Estimate	Jul06-Jun07[a]	Extra-polated	n[a]	Estimate	Jul06-Jun07[a]	Extra-polated	n[a]	Estimate	Jul06-Jun07[a]	Extra-polated
Installation Rate	25	100%			25	100%			12	100%		
Engineering Verification Factor	25	96%	+/- 1.2%	+/- 7.9%	25	122%	+/- 4.3%	+/- 18.3%	12	98%	+/- 3.2%	+/- 5.0%
Gross Savings Adjustment Factor		96%				122%				98%		
Attribution Factor	25	5%	+/- 2.1%	+/- 5.4%	25	19%	+/- 9.3%	+/- 18.7%	12	47%	+/- 4.5%	+/- 6.9%
Realization Rate		5%				23%				46%		

[a] The gross savings adjustment factor and the realization rate are not calculated directly but are products of other adjustment factors. Therefore, sample sizes are not provided for these two adjustment factors.

Similar to previous years, the final FY07 gross savings adjustment factors are high, 96 percent, 122 percent, and 98 percent for energy (kWh), demand (kW), and therms, respectively. Final FY07 net Verified energy impacts are, however, low. The realization rates are 5 percent for energy (kWh), 23 percent for demand (kW), and 46 percent for therms program estimated impacts. These low realization rates are a result of low attribution factors.

For all energy types, the installation rate was 100 percent and the engineering verification factor was close to or exceeded 100 percent. The free-ridership rates, however, for all energy types (kW, kWh, and therms) for the Renewable Energy Program are high. Free-ridership is estimated at 95 percent for kWhs (energy), 81 percent for kW (demand), and 53 percent for therms. That is, the analysis indicates that 95 percent of the electric energy savings, 81 percent of the demand savings, and 53 percent of the therm savings would have occurred without the program.

These results represent a high free-ridership rate and a continuation of low realization rates for FY06. The realization rates are overall (for all projects) and are weighted by the kWh, kW, and therms associated with the project. The Renewables program is characterized by a wide variety of projects, in regards to technology type and size, relative to the overall number of projects. The savings associated with the program, however, is dominated by the largest projects, for which one project can represent 30 to 80 percent of a savings (kW, kWh, or therms. In the past, the Renewables program capped incentives at $35,000, which meant that

[19] For a more complete description of the data collection methodology and analysis algorithms refer to *Renewable Energy Program: Spring 2004 Impact and Linkage Evaluation,* Bobbi Tannenbaum and Ryan Barry, KEMA Consulting and Adam Serchuk, Serchuk and Associates, PA Government Services Inc. July 19, 2004.

incentives for large projects were a very small percentage of project cost. Although the program provides other services to these participants, (such as assistance filling out Department of Agriculture loan applications and information on codes or technologies), this is a situation likely to result in high free-ridership. For the current program year, Focus modified the program rules to limit applicants and increase incentive amounts for large projects. We anticipate realization rates improving for the current program period as projects participating with the current incentive structure are implemented.

While the overall program realization rate was low, realization rates for the individual technologies varied substantially. For the technologies that did not include large projects we found realization rates ranging from 46 to 67 percent for kWhs and 49 to 90 percent for kW savings. The realization rate for therm savings ranged from 60 to 80 percent. This is a clear indication that a substantial number of the projects provided incentives by the Renewable Program would not be installed without the program. These projects, however, do not represent a substantial portion of the program savings and get lost in the savings weighted averages.

5.3.4 Estimated Energy Impacts (July 1, 2007–June 30, 2008)

Estimated July 1, 2007, to June 30, 2008 evaluation-verified gross and net energy impacts are determined by applying the final FY07 adjustment factors to the July 1, 2007, to June 30, 2008, program-reported gross energy savings. The estimated July 1, 2007, to June 30, 2008, impacts, the final FY07 impacts, and the impacts for the previous program years are provided in Table 5-3. The evaluation team calculated FY07 adjustment factors based on projects completed during FY07. We applied these adjustment factors to the program-reported gross energy savings for projects completed in the July 1, 2007, to June 30, 2008, to determine estimated evaluation-verified gross and net energy impacts for that 12-month period.

For all completed years in the table, evaluation-verified gross is calculated by multiplying the overall program-reported gross savings by the overall program gross savings adjustment factor. Similarly, evaluation-verified net savings is the product of the overall program-reported gross savings and the overall realization rate. This is done for each of the three energy units (kWh, kW, and therms). In the case of estimated July 1, 2007, to June 30, 2008, energy savings, the adjustment factors are applied at the technology level because the percentage of savings attributable to each technology changed from FY07 to the July 1, 2007, to June 30, 2008, period. Technology level adjustment factors are not provided in this report to protect respondent confidentiality. Overall factors are reported in Table 5-5.

5.4 UPCOMING RENEWABLE EVALUATION ACTIVITIES CURRENT CONTRACT PERIOD

In this section, we describe the upcoming evaluation activities for the current contract period. For a more detailed discussion of these activities refer to the Detailed Evaluation Plan.[20]

- **Benefit-Cost Analysis.** The evaluation team will conduct a benefit-cost analysis of the Focus on Energy in this contract period. The evaluation team will provide historical and projected inputs for the renewable energy program to support this effort.
- **Standardized Calculation Approaches.** The evaluation team is currently completing the Standard Calculations Recommendations for submission to the PSCW. The document will be final before the finalization of this Semi Annual Report. The Standard Calculation report outlines standardized approaches for estimating project generation (kW and kWh) and therms for all renewable energy types included in the program.
- **Modified Detailed Evaluation Plan.** The DEP will be modified based on an increased focus on the net-to-gross estimates in this contract period and the additional effort to refine these estimates. KEMA will assess the need to conduct additional (unplanned) research to address program effects (supply-side) on participants that may not be captured in the current attribution sequence. This may result in one or more planned activities discussed below being eliminated or scaled back.
- **Process Evaluation.** KEMA currently has a process evaluation planned for early 2008 to assess the integration of the renewable program activities with the Business Program.
- **Impact Evaluation.** KEMA plans to conduct one additional impact evaluation in this contract period. The next impact evaluation will cover projects completed between July 1, 2007, and December 31, 2008 (the current contract period). The purpose of this evaluation is to determine the program realization rate for this contract period and identify changes to realization rates due to changes in program incentive levels. The impact evaluation will include revisions to the participant questionnaire as well as the use of “project impact statements” completed by the program leads to better capture program activities for large projects. The changes to the data collection approach and reporting are based upon work completed by an ad hoc evaluation working group addressing net-to-gross self reports and discussed with Focus on Energy program staff in May. Focus on Energy program staff will have the opportunity to review changes prior to implementation of the impact surveys.

[20] Focus on Energy Evaluation Team. *Focus on Energy Public Benefits Evaluation, Contract Period One, Detailed Evaluation Plan*, August 2007

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EPA's *E-Grid 2000 database* with data for the MAIN and MAPP NERC regions from 1998.

APPENDIX A: GEOGRAPHIC DISTRIBUTION OF DIRECT ENERGY IMPACTS

This appendix presents the geographic distribution of direct energy impacts.

A.1 INTRODUCTION

The following appendix sections provide tables and maps that show annual energy savings achieved through resource acquisition activities of Focus on Energy programs. This version of the report does not provide observations, comments, or analysis of the data—which is largely the domain of the respective program evaluation leads. It is expected that evaluation team leads may integrate some of this information in the relevant evaluation reports and make the relevant analysis integrating it with other evaluation results and analysis.

Note: A change in the type of energy impacts data used for the maps. The data reported in all of the maps in this report are *persistent net* energy impacts— a new type of reported energy impacts. As in the past, these are impact estimates based on evaluation work done to establish verified net for specific programs and/or program areas. However, as discussed in Section 1.1, *persistent net* is defined as:

> Energy savings, expressed as *verified net*, that are lifecycle impacts that also include an exponential decay rate, such that half the savings remains after the measure life.

In addition to being the new basis for the maps, *persistent net* energy impacts are used in the Economic and Benefit-Cost analyses for Focus. Previously, all maps used verified gross savings numbers (cumulated across program periods by summing annual first year savings). Thus, the reader should be aware of this shift since it has the effect of diminishing the levels of reported savings (compared to verified gross savings). This is because verified gross savings do not consider either the lifecycle effects (i.e., the median operating life of energy efficiency measures, such as CFLs, that may cause energy savings to end) or the exponential decay rate.

In order to provide some continuity in this transition in the basis for the mapped energy impacts, the tables that accompany the maps include a column for verified gross impacts—as in past reports—though these are *lifecycle* verified gross impacts, and will therefore show some differences from past reports. Additional discussion of lifecycle and persistent savings is provided above in Section 2.0 and Section 2.8.

Normalizing data for the maps. As in the past, the maps that represent impacts by "*County*" and *"Utility Territory*" have been normalized, while the maps that represent impacts by "*Senate District*" and "*Assembly District*" show total energy impacts. The primary reason the Senate District and Assembly District data has not been normalized is because of difficulty in estimating the number of eligible participants in those regions due to issues with the nonparticipating utility territories. Some options are being considered for establishing those estimates for use in future reports.

For the county maps, an effort was made to estimate the number of eligible participants (excluding the relevant customers of nonparticipating utilities). For the utility maps, this was not an issue—since by definition their customers are eligible to participate in the program, therefore the number of customers reported by the utilities was used. Although, it should be noted there are likely some differences in the definition of rate classes from utility to utility that

may cause anomalies in the *"per capita"* values. This will be most notable in the Industrial Sector. There are some differences in the numbers of eligible customers using these two methods. These differences are primarily due to the definition of a *"customer,"* since the utilities define customers by *service addresses or meters*; the method used for the county maps defined eligible customers as *households* (using U.S. Census data) for the residential segment *and business addresses* for the business segment (using Dun & Bradstreet data).

The maps are based on the "Dollars Saved per Customer" column in the tables for the county and utility territory maps. This represents the annuals dollars in energy bill savings realized by program participants divided by the total number of customers in the county or utility territory. The senate and assembly district maps present the information shown in the "Annual Dollars Saved" column of the tables. This represents the annual dollars in energy bill savings realized by program participants. The energy bill savings are calculated using the average retail price of energy for the state of Wisconsin for each rate class (commercial, industrial, and residential). Comparisons cannot be made between maps, because both the definition of per capita and energy savings scales vary by program.

A.2 BUSINESS PROGRAMS

This section presents tables and maps that show energy savings achieved through participation in Focus on Energy Business Programs. These impacts are broken out for the Commercial and Industrial sectors.

Note: A change in the type of energy impacts data used for the Business Programs maps. As explained in the Introduction to this Appendix (above), the data reported in all of the maps in this report are now *persistent net* energy impacts—a new type of reported energy impacts. As in the past, these are impact estimates based on evaluation work done to establish verified net for specific programs and/or program areas. However, as discussed in Section 1.1, *persistent net* is defined as:

> Energy savings, expressed as *verified net*, that are lifecycle impacts that also include an exponential decay rate, such that half the savings remains after the measure life.

Thus, the reader should be aware of this shift since it has the effect of diminishing the levels of reported savings (compared to verified gross savings). This is because verified gross savings do ***not*** consider either the lifecycle effects (i.e., the median operating life of energy efficiency measures, such as CFLs, that may cause energy savings to end) or the exponential decay rate.

In order to provide some continuity in this transition in the basis for the mapped energy impacts, the tables that accompany the maps include a column for verified gross impacts—as in past reports—though these are *lifecycle* verified gross impacts, and will therefore show some differences from past reports. Additional discussion of lifecycle and persistent savings is provided above in Section 2.0 and Section 2.8.

The *"Number of Customers"* presented for each of the counties in Table A-1 ("eligible participants") and Table A-5 are based on the number of customers in industries targeted by the program administrator in the respective programs who are in participating utility territories in that county. The number businesses in participating utility territories in each county were estimated by determining the proportion of businesses in the State of Wisconsin Department of Workforce Development Standard Name and Address Program (SNAP) covered by

Wisconsin's Unemployment Insurance Law. It was determined, based on geographic location, whether each business was in a utility territory of a utility participating in the Focus on Energy program. Then for each industry (at the two-digit SIC level) in each county, the proportion of the businesses that were in a participating utility territory was determined. Because the SNAP database is not fully representative of all of the businesses in the state, this ratio was applied to the number of businesses in that industry in that county reported by Dun and Bradstreet.

An analysis of the industries of the businesses that have had energy savings potential identified by the program administrator was conducted to determine which of the industries were being targeted by the program administrator. This analysis resulted in the identification of 23 of the 82 two-digit SIC codes as being targeted by the industrial programs and 28 of the 82 two-digit SIC codes as being targeted by the commercial programs, with eight industries (as identified by the two-digit SIC code) being targeted by both the industrial and commercial programs. The 23 codes identified as being targeted by the industrial programs account for about 33 percent of Wisconsin businesses, while the 28 codes identified as being targeted by the commercial programs account for about 79 percent of Wisconsin businesses.

The *"Number of Customers"* presented for each of the participating utilities in Table A-4 and Table A-9 are based on the number of customers reported by the utilities in 2005 and 2006, respectively.

A.2.1 Commercial Programs

Figure A-1.
Commercial Programs
Per Capita Energy, Electric or Gas Bill Savings by County
Net Cumulative Savings (July 1, 2001–June 30, 2008)

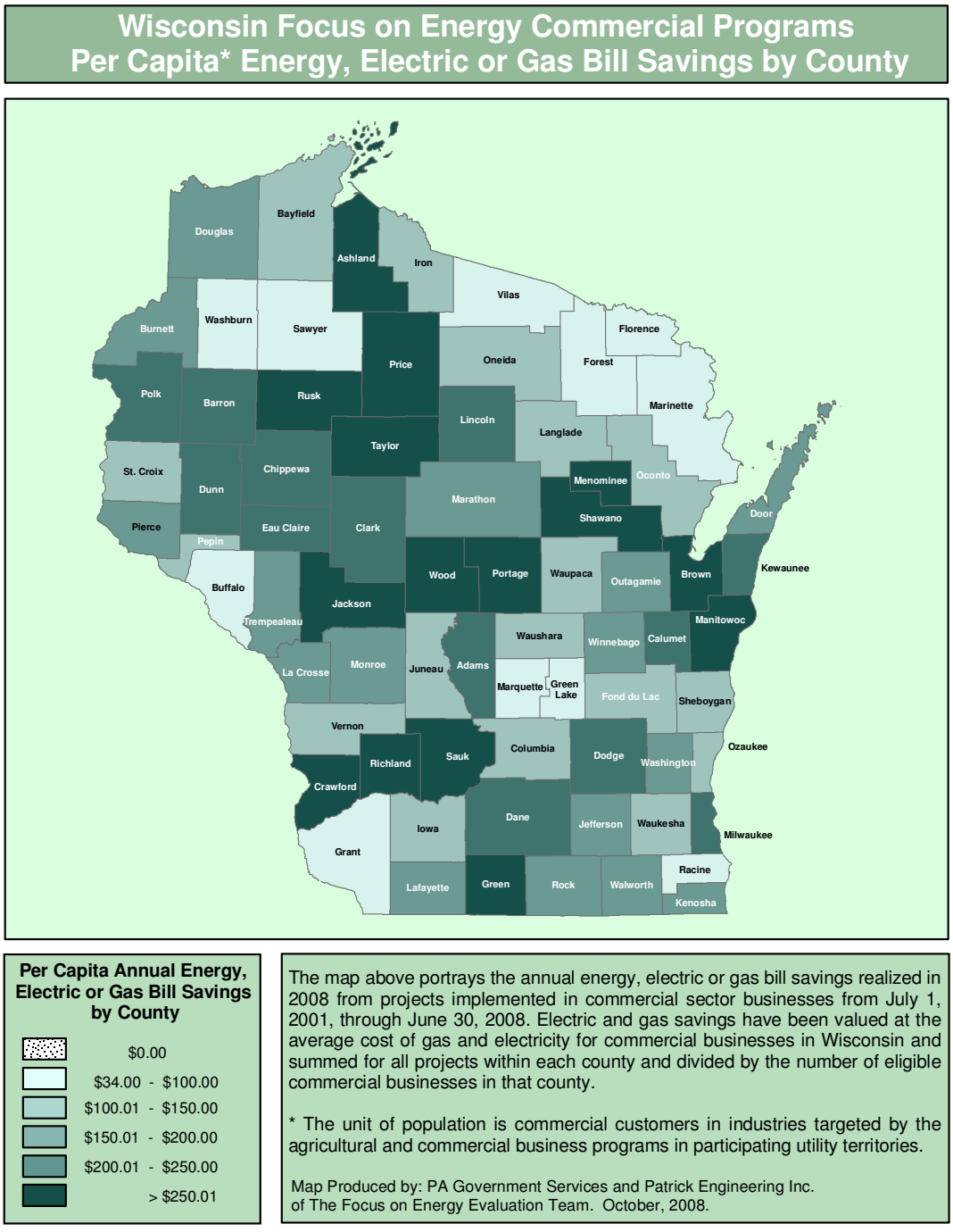


Table A-1. Commercial Program Energy Impacts
(By County)
Net Cumulative Savings (July 1, 2001–June 30, 2008)

County	Annual Dollars per Capita	Annual Verified kWh	Annual Verified kW	Annual Verified Therms	Annual Net kWh	Annual Net kW	Annual Net Therms	Eligible Participants
Adams	$221	1,065,502	253	25,558	601,939	147	15,113	298
Ashland	$319	3,658,689	1,077	155,168	1,953,030	585	76,417	757
Barron	$220	3,836,034	880	194,029	2,068,790	475	97,962	1,239
Bayfield	$119	1,341,500	353	40,587	707,326	193	18,792	658
Brown	$300	33,703,762	9,716	1,620,038	19,559,295	6,034	970,707	8,735
Buffalo	$37	217,049	63	28,132	121,202	36	13,897	648
Burnett	$162	1,139,720	160	65,105	631,704	89	28,836	507
Calumet	$219	4,167,887	821	97,305	2,237,200	426	42,102	1,051
Chippewa	$211	5,897,718	1,208	304,161	3,254,402	674	140,309	1,965
Clark	$210	4,208,392	1,023	160,789	2,280,622	566	82,993	1,312
Columbia	$130	2,745,165	687	276,891	1,552,934	374	137,382	2,073
Crawford	$310	7,062,583	1,341	9,534	2,997,605	656	5,449	831
Dane	$212	48,529,574	10,340	2,353,524	27,091,851	6,099	929,210	15,152
Dodge	$202	7,421,375	1,604	503,163	4,104,270	878	245,114	2,929
Door	$194	3,489,518	984	78,308	2,065,564	610	36,362	1,087
Douglas	$168	2,869,642	746	279,136	1,537,482	467	143,626	1,634
Dunn	$231	3,826,936	814	215,794	2,401,143	535	108,444	1,350
Eau Claire	$210	11,972,267	3,944	480,792	6,497,375	2,301	222,312	3,667
Florence	$82	57,372	8	1,108	27,375	4	562	35
Fond du Lac	$149	8,136,846	1,963	328,458	4,616,431	1,088	153,788	3,640
Forest	$51	379,013	80	4,594	236,854	51	2,147	436
Grant	$79	2,353,408	612	56,666	1,331,882	335	29,857	1,789
Green	$404	6,423,957	1,509	150,121	3,420,001	780	74,993	900
Green Lake	$34	1,001,697	249	34,902	540,038	137	17,739	1,842
Iowa	$100	2,266,936	537	69,735	1,218,022	272	32,392	1,351
Iron	$148	814,060	192	26,914	469,507	114	13,397	359
Jackson	$947	1,519,271	423	47,572	738,183	220	23,909	91
Jefferson	$157	5,041,561	1,304	329,818	2,626,637	644	129,892	2,241
Juneau	$150	877,778	174	40,747	428,958	86	20,023	376
Kenosha	$153	8,220,474	1,396	356,681	4,634,328	821	165,316	3,647
Kewaunee	$210	2,979,318	755	160,552	1,618,871	385	76,342	1,015
La Crosse	$168	11,431,937	3,266	298,871	6,614,998	2,095	141,288	4,159
Lafayette	$195	1,379,638	339	86,149	744,282	168	53,258	596
Langlade	$130	2,266,068	855	88,947	1,228,670	441	32,236	1,042
Lincoln	$231	6,204,975	1,668	107,779	3,075,383	864	44,507	1,312
Manitowoc	$454	7,088,781	1,544	432,425	3,896,158	820	203,156	1,174
Marathon	$168	12,774,798	3,149	425,550	7,640,117	1,808	197,449	5,019
Marinette	$94	3,023,367	792	74,808	1,636,661	413	37,405	1,872
Marquette	$77	825,463	205	22,560	401,228	102	10,582	574
Menominee	$372	229,218	54	30,066	124,968	40	14,299	67
Milwaukee	$201	66,900,439	13,725	3,632,792	37,487,866	7,768	1,743,988	24,399
Monroe	$161	3,254,828	690	233,998	1,793,982	376	116,582	1,663

County	Annual Dollars per Capita	Annual Verified kWh	Annual Verified kW	Annual Verified Therms	Annual Net kWh	Annual Net kW	Annual Net Therms	Eligible Participants
Oconto	$129	2,002,555	717	56,903	1,000,155	360	28,486	876
Oneida	$101	3,390,839	714	125,434	2,032,630	452	59,144	2,273
Outagamie	$175	17,050,598	3,784	527,767	9,054,396	2,193	238,058	5,713
Ozaukee	$123	5,585,880	1,318	189,911	2,872,966	739	90,918	2,713
Pepin	$147	842,829	249	41,771	521,046	136	20,794	440
Pierce	$155	2,369,865	574	49,482	1,435,286	345	24,814	938
Polk	$224	5,984,898	1,557	164,966	3,198,802	827	71,892	1,523
Portage	$269	10,095,367	2,388	410,587	5,642,006	1,351	188,163	2,470
Price	$270	789,681	165	356,874	439,693	88	106,202	534
Racine	$74	6,250,331	1,386	293,130	3,361,279	761	135,797	5,693
Richland	$688	1,964,259	484	13,786	1,020,496	247	9,753	139
Rock	$181	12,395,981	2,699	710,510	6,806,499	1,503	371,170	5,237
Rusk	$567	5,347,853	1,406	132,150	2,716,760	737	47,205	487
Sauk	$316	10,399,042	2,325	324,256	6,091,619	1,340	155,473	2,118
Sawyer	$77	1,201,992	230	23,910	714,977	135	11,480	933
Shawano	$255	4,231,411	1,026	68,478	2,128,276	515	33,617	835
Sheboygan	$128	6,356,097	1,586	272,367	3,375,136	876	127,177	3,215
St. Croix	$130	2,857,998	709	151,494	1,728,806	458	73,000	1,684
Taylor	$2,401	3,302,048	810	99,881	1,428,527	331	47,501	70
Trempealeau	$159	802,346	287	60,275	480,019	197	26,198	421
Vernon	$111	1,493,948	350	41,135	945,110	239	21,120	908
Vilas	$81	1,729,951	460	13,918	939,019	261	7,189	1,068
Walworth	$162	8,810,830	2,317	290,124	5,154,466	1,393	155,189	3,633
Washburn	$86	864,609	133	37,179	489,445	86	17,285	678
Washington	$151	8,717,667	1,866	239,436	4,803,363	1,064	113,812	3,433
Waukesha	$101	23,038,761	5,553	613,433	13,236,431	3,279	301,139	13,996
Waupaca	$114	4,530,928	1,084	42,283	2,435,979	612	15,531	1,935
Waushara	$125	1,709,832	425	54,491	897,272	224	28,620	838
Winnebago	$195	15,375,117	3,818	637,197	8,659,234	2,277	273,648	5,157
Wood	$435	5,734,451	1,062	119,613	3,437,985	608	60,881	805
Not mapped*		5,683,691	1,669	20,138	3,996,862	1,197	4,806	

* *Unknown County*: The impacts for these participants are not mapped either because their address information is not complete or because their address falls out of the boundaries of participating utility territory according to the GIS mapping application.

Figure A-2.
Commercial Programs
Implemented Energy, Electric or Gas Bill Savings by Senate District
Net Cumulative Savings (July 1, 2001–June 30, 2008)

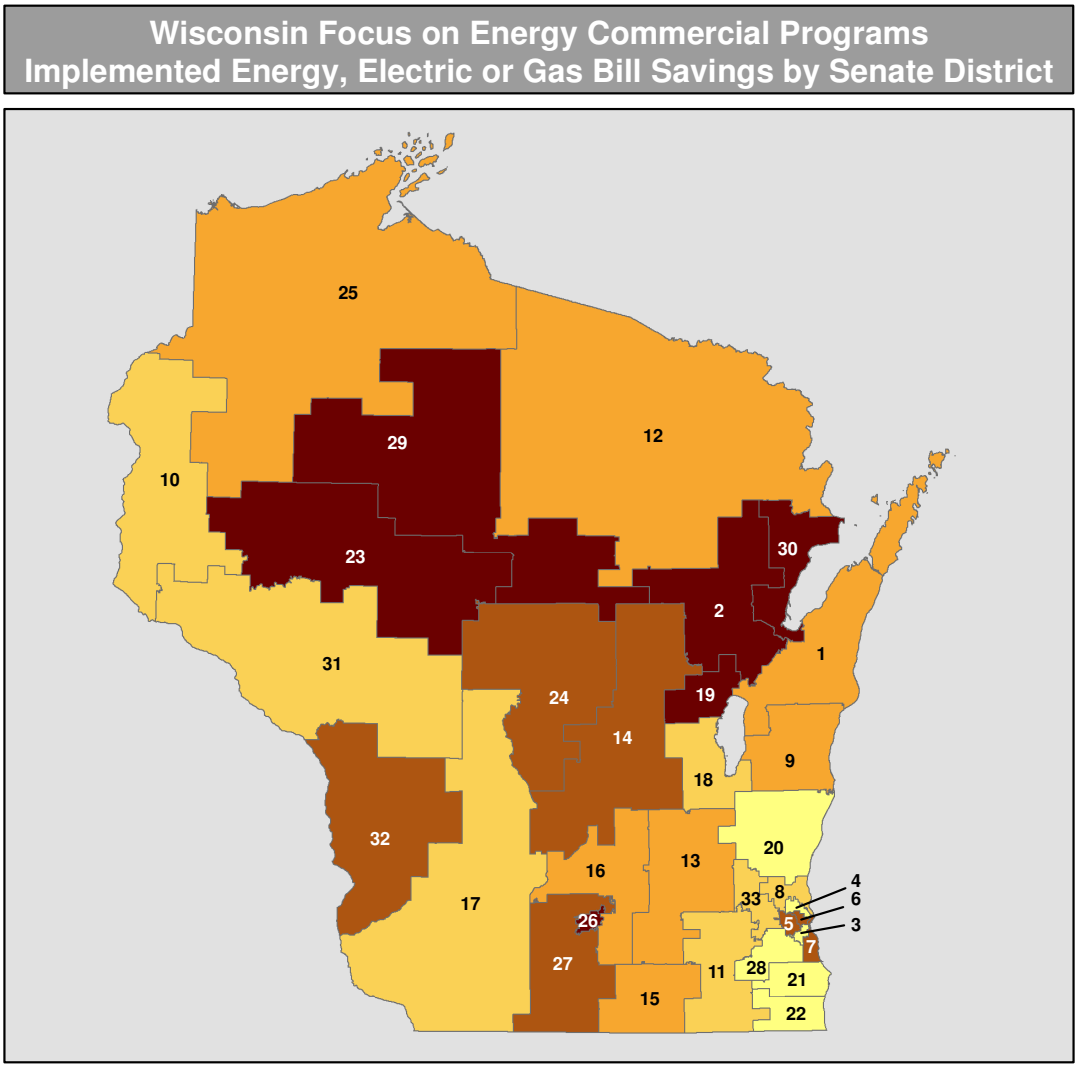


Table A-2. Commercial Program Energy Impacts
(By Senate District)
Net Cumulative Savings (July 1, 2001–June 30, 2008)

Senate District	Annual Dollars Saved	Annual Verified kWh	Annual Verified kW	Annual Verified Therms	Annual Net kWh	Annual Net kW	Annual Net Therms
1	$806,723	12,913,706	3,212	443,897	6,973,072	1,725	218,323
2	$1,167,073	18,470,105	4,846	623,082	10,237,530	2,911	303,366
3	$494,890	4,416,441	948	617,974	2,363,084	535	293,513
4	$267,378	3,876,202	729	160,087	2,243,471	430	78,000
5	$1,107,245	14,292,717	2,787	915,164	8,067,519	1,596	424,943
6	$1,155,943	15,587,013	3,060	892,218	8,146,874	1,532	466,592
7	$1,120,249	16,691,075	3,456	612,147	9,754,870	2,063	297,190
8	$740,020	11,978,625	2,893	466,064	6,446,053	1,654	196,142
9	$822,127	12,549,904	2,730	585,575	6,586,372	1,418	265,820
10	$799,035	11,809,512	2,959	533,708	6,527,675	1,666	247,827
11	$776,795	11,875,431	3,393	443,169	6,596,059	1,918	220,086
12	$857,915	16,099,357	4,518	376,436	8,285,225	2,389	159,691
13	$847,649	11,980,203	2,636	685,978	6,375,224	1,390	308,715
14	$1,001,924	15,636,166	3,475	516,678	8,908,025	1,977	250,505
15	$986,119	13,486,373	2,918	690,702	7,360,598	1,581	363,818
16	$888,759	13,724,522	2,631	551,532	7,690,142	1,416	239,860
17	$659,036	10,685,009	2,592	365,836	5,536,582	1,304	191,684
18	$803,426	12,752,621	3,238	514,946	7,039,485	1,814	209,520
19	$1,185,752	19,263,318	4,017	734,470	10,110,701	2,244	332,450
20	$524,680	7,697,422	1,643	359,416	4,158,281	893	173,408
21	$335,875	5,274,872	1,117	222,637	2,797,667	596	99,694
22	$588,820	8,305,346	1,428	422,888	4,611,548	815	199,196
23	$1,291,623	19,789,249	5,288	812,054	10,703,468	2,904	387,969
24	$1,002,773	16,334,075	3,619	471,915	9,238,658	2,006	223,788
25	$962,123	13,313,015	3,322	725,064	7,089,991	1,860	362,591
26	$1,364,576	19,208,297	3,998	1,425,856	9,927,547	2,286	524,944
27	$1,126,284	18,633,105	4,336	577,021	10,296,463	2,440	258,029
28	$489,690	9,489,418	2,062	140,375	5,031,842	1,076	65,919
29	$1,210,680	19,499,162	4,946	847,255	10,623,793	2,629	314,390
30	$1,490,214	17,062,922	5,130	1,048,739	9,455,269	2,928	688,826
31	$785,434	10,854,745	2,800	605,142	5,876,684	1,593	288,608
32	$1,005,788	19,461,194	4,897	338,007	10,026,261	2,896	161,129
33	$713,380	11,496,502	2,670	324,217	6,569,966	1,551	159,411
Not mapped*	$2,866,578	39,008,546	10,364	1,062,455	27,603,674	7,770	540,246

* *Unknown District*: The impacts for these participants are not mapped either because their address information is not complete or because their address falls out of the boundaries of participating utility territory according to the GIS mapping application.

Figure A-3.
Commercial Programs
Implemented Energy, Electric or Gas Bill Savings by Assembly District
Net Cumulative Savings (July 1, 2001–June 30, 2008)

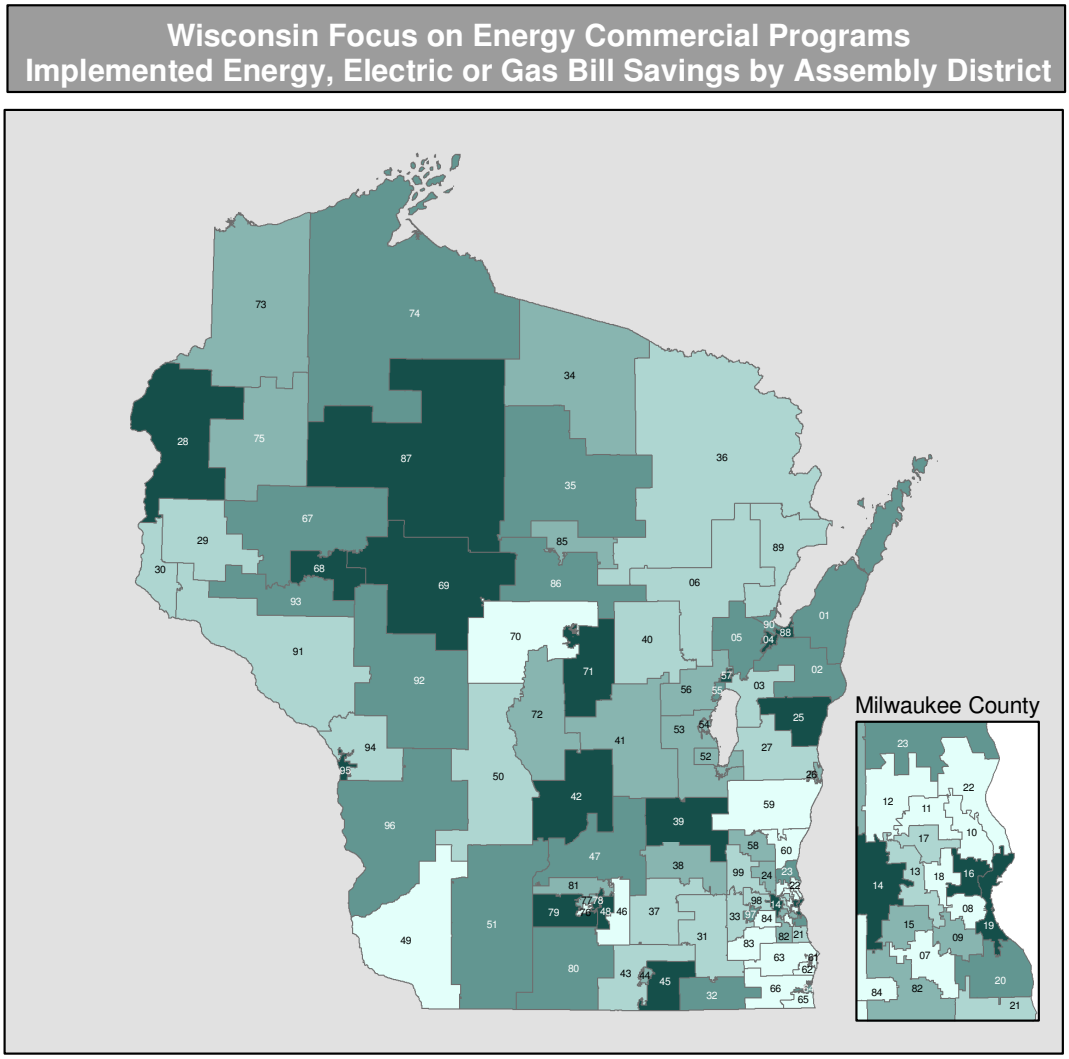


Table A-3. Commercial Program Energy Impacts
(by Assembly District)
Net Cumulative Savings (July 1, 2001–June 30, 2008)

Assembly District	Annual Dollars Saved	Annual Verified kWh	Annual Verified kW	Annual Verified Therms	Annual Net kWh	Annual Net kW	Annual Net Therms
1	$313,815	5,254,469	1,362	162,165	2,792,795	715	78,237
2	$297,957	4,288,616	1,096	201,017	2,348,928	609	99,516
3	$194,951	3,370,621	753	80,714	1,831,349	401	40,570
4	$554,006	7,391,398	2,081	357,666	4,470,126	1,383	176,481
5	$383,911	6,893,958	1,726	152,933	3,701,767	1,033	71,945
6	$229,155	4,184,750	1,039	112,483	2,065,637	496	54,941
7	$106,449	1,224,875	310	103,880	620,392	170	53,790
8	$151,616	1,517,048	347	152,998	822,953	198	81,670
9	$236,825	1,674,519	292	361,095	919,739	168	158,052
10	$109,339	1,150,303	277	101,118	693,165	174	50,588
11	$56,633	1,023,479	183	16,906	576,597	109	8,069
12	$101,407	1,702,420	270	42,063	973,710	146	19,344
13	$214,588	2,360,027	587	231,732	1,377,252	364	97,880
14	$608,728	9,642,868	1,681	314,598	5,487,398	951	145,924
15	$283,930	2,289,822	519	368,835	1,202,868	282	181,139
16	$853,625	11,615,793	2,144	612,053	6,223,912	1,060	327,249
17	$202,060	3,266,915	730	146,543	1,554,338	369	70,704
18	$100,257	704,306	186	133,622	368,624	103	68,638
19	$644,983	9,169,729	1,801	312,404	5,725,605	1,192	162,001
20	$293,244	4,703,221	1,148	202,200	2,450,552	603	86,375
21	$182,023	2,818,125	507	97,542	1,578,713	268	48,814
22	$155,883	2,043,746	476	169,002	1,176,276	302	56,450
23	$336,133	6,097,948	1,549	178,633	2,999,267	803	83,146
24	$248,005	3,836,930	868	118,429	2,270,510	549	56,546
25	$413,167	5,654,818	1,090	344,825	3,084,096	560	152,422
26	$245,533	4,195,684	1,010	135,618	2,129,476	535	65,851
27	$163,427	2,699,402	630	105,132	1,372,799	323	47,547
28	$413,102	6,879,195	1,704	238,200	3,647,753	902	105,377
29	$219,818	2,449,747	674	216,506	1,371,156	386	103,572
30	$166,115	2,480,570	581	79,003	1,508,766	378	38,878
31	$183,178	2,645,318	873	174,446	1,269,600	385	75,723
32	$392,631	5,920,932	1,543	162,060	3,583,348	988	90,457
33	$200,987	3,309,181	976	106,663	1,743,111	545	53,906
34	$255,287	4,125,243	934	135,630	2,261,450	534	64,519
35	$409,466	8,234,400	2,520	172,709	4,113,678	1,295	62,939
36	$193,035	3,737,635	1,064	68,098	1,908,585	560	32,233
37	$199,094	3,372,048	766	135,770	1,753,753	395	51,143
38	$234,721	3,184,066	725	204,107	1,656,612	380	94,549
39	$413,834	5,424,089	1,145	346,100	2,964,859	614	163,023
40	$202,528	4,225,461	944	37,327	2,239,759	511	14,038
41	$235,856	2,957,634	677	215,057	1,551,331	363	104,449
42	$563,541	8,453,070	1,854	264,295	5,116,935	1,102	132,018

Assembly District	Annual Dollars Saved	Annual Verified kWh	Annual Verified kW	Annual Verified Therms	Annual Net kWh	Annual Net kW	Annual Net Therms
43	$178,750	3,054,413	830	90,284	1,613,221	427	42,694
44	$263,710	4,513,552	812	97,563	2,538,468	478	49,777
45	$543,658	5,918,409	1,277	502,856	3,208,909	677	271,347
46	$156,926	1,543,569	428	172,371	879,803	266	82,195
47	$312,403	4,910,670	1,080	188,040	2,631,440	541	90,286
48	$419,430	7,270,284	1,123	191,121	4,178,899	609	67,378
49	$140,873	2,474,124	619	53,412	1,335,351	327	28,315
50	$187,056	3,181,849	805	104,860	1,601,809	409	51,877
51	$331,107	5,029,036	1,167	207,565	2,599,422	568	111,492
52	$266,358	4,079,973	995	136,054	2,468,286	589	58,251
53	$280,378	5,127,587	1,237	130,977	2,607,985	612	60,502
54	$256,690	3,545,061	1,006	247,916	1,963,213	614	90,767
55	$374,445	5,025,882	1,059	325,180	2,654,727	573	149,834
56	$269,191	6,110,619	1,112	33,173	3,098,377	602	8,540
57	$542,116	8,126,817	1,845	376,116	4,357,597	1,070	174,076
58	$239,780	3,539,306	618	158,738	1,943,224	334	75,674
59	$140,146	2,095,272	526	88,806	1,131,502	275	44,585
60	$144,754	2,062,844	500	111,871	1,083,555	285	53,149
61	$118,629	2,471,100	558	35,620	1,261,447	296	12,429
62	$141,966	1,438,823	296	158,322	780,649	158	75,633
63	$75,281	1,364,949	263	28,695	755,571	141	11,632
64	$305,628	4,001,285	580	235,054	2,243,234	344	115,928
65	$156,859	2,485,915	453	94,967	1,404,449	261	38,400
66	$126,332	1,818,147	395	92,867	963,866	210	44,868
67	$390,112	5,633,415	1,128	244,449	3,230,383	642	117,380
68	$490,216	8,081,573	2,733	269,654	4,303,012	1,510	127,188
69	$411,294	6,074,261	1,427	297,951	3,170,072	752	143,401
70	$126,303	2,344,152	587	43,946	1,235,593	292	22,190
71	$589,362	9,229,836	2,217	350,984	5,055,665	1,215	162,716
72	$287,109	4,760,087	815	76,986	2,947,400	499	38,883
73	$272,310	2,925,016	742	275,185	1,538,341	454	141,661
74	$399,781	6,301,516	1,705	236,212	3,374,199	926	114,976
75	$290,032	4,086,483	875	213,667	2,177,451	480	105,954
76	$115,202	1,176,297	273	187,597	643,827	164	60,511
77	$244,982	3,847,756	872	216,903	1,908,540	471	83,721
78	$1,004,391	14,184,244	2,853	1,021,355	7,375,179	1,651	380,712
79	$472,673	8,071,894	1,681	200,996	4,768,535	1,073	71,000
80	$394,355	7,202,427	1,739	150,042	3,765,671	885	76,970
81	$259,255	3,358,784	916	225,983	1,762,257	481	110,059
82	$230,167	4,632,499	1,005	68,433	2,353,395	498	31,959
83	$112,371	2,160,089	547	40,971	1,097,999	292	19,851
84	$147,152	2,696,829	510	30,970	1,580,448	286	14,109
85	$284,294	4,935,323	1,163	59,195	3,019,871	633	30,053
86	$340,318	4,991,473	1,359	206,082	3,000,502	830	87,191
87	$586,196	9,574,445	2,424	581,977	4,604,932	1,165	197,147
88	$980,495	8,727,822	2,991	825,559	4,680,021	1,652	581,670

Assembly District	Annual Dollars Saved	Annual Verified kWh	Annual Verified kW	Annual Verified Therms	Annual Net kWh	Annual Net kW	Annual Net Therms
89	$157,474	2,758,441	958	70,124	1,451,551	539	35,083
90	$352,244	5,576,659	1,181	153,055	3,323,697	736	72,072
91	$169,403	2,225,722	679	126,538	1,303,609	411	59,237
92	$324,768	4,223,983	978	266,842	2,258,757	530	133,604
93	$291,263	4,405,039	1,143	211,762	2,314,318	652	95,767
94	$218,135	4,285,975	1,351	61,848	2,406,691	820	15,592
95	$411,554	6,181,454	1,736	226,026	3,459,336	1,127	119,548
96	$376,098	8,993,765	1,810	50,133	4,160,234	948	25,989
97	$301,273	4,000,437	839	186,639	2,428,967	495	96,131
98	$225,304	3,724,325	729	74,856	2,268,514	467	34,215
99	$186,803	3,771,740	1,102	62,721	1,872,485	589	29,065
Not mapped*	$2,866,578	39,008,546	10,364	1,062,455	27,603,674	7,770	540,246

* *Unknown District:* The impacts for these participants are not mapped either because their address information is not complete or because their address falls out of the boundaries of participating utility territory according to the GIS mapping application.

Figure A-4.
Commercial Programs
Per Capita Energy, Electric Bill Savings by Electric Utility Territory
Net Cumulative Savings (July 1, 2001–June 30, 2008)

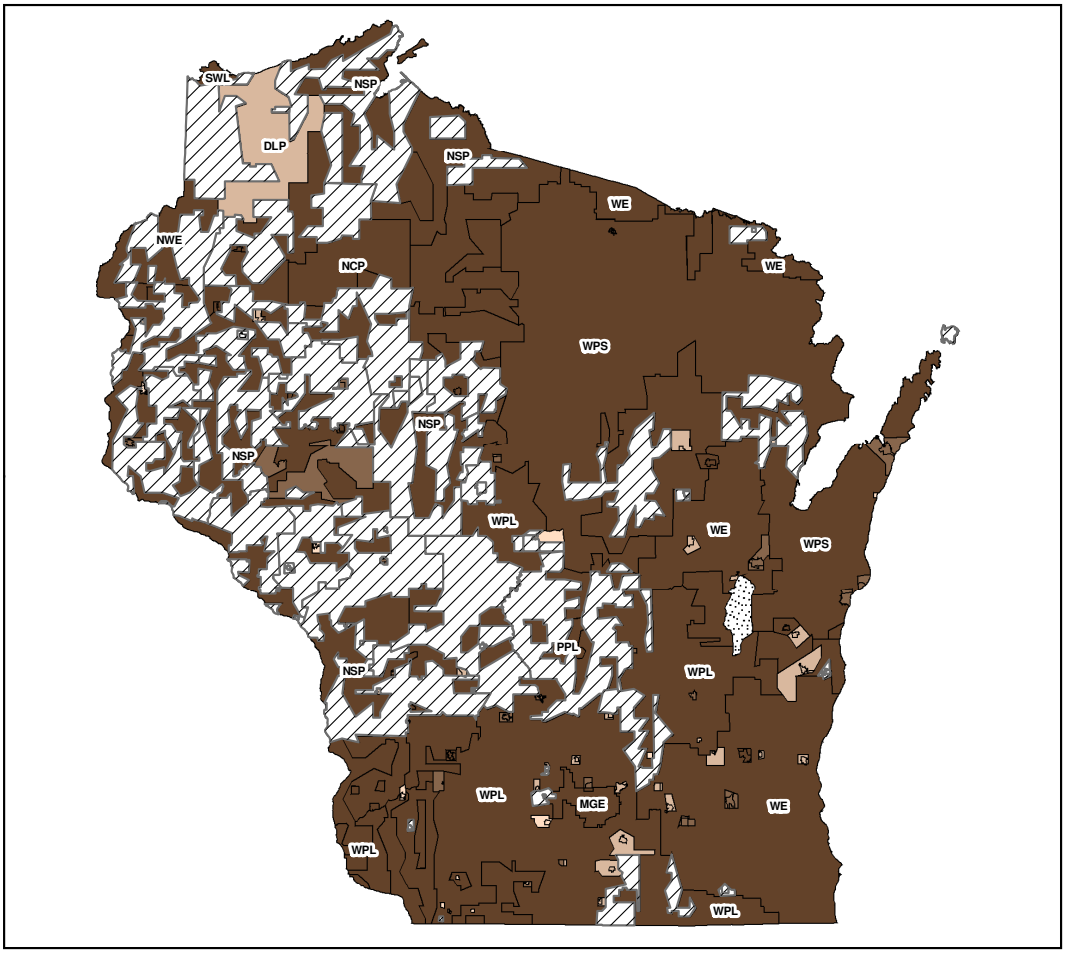


Table A-4. Commercial Program Electric Impacts
(By Participating Electric Utility)
Net Cumulative Savings (July 1, 2001–June 30, 2008)

Utility	Map Code	Annual Dollars per Capita	Annual Dollars Saved	Annual Verified kWh	Annual Verified kW	Annual Net kWh	Annual Net kW	Number of Customers
Algoma Utility Commission		$2	$861	20,095	5	10,235	3	361
Alliant Energy	WPL	$69	$3,719,880	81,197,034	18,978	44,231,627	10,556	54,010
Arcadia Electric & Water Utility		$1	$178	3,070	1	2,121	1	229
Barron Light And Water Utility			$0	0	0	0	0	
Black River Falls Municipal Electric & Water		$19	$9,679	207,053	63	115,087	38	498
Bloomer City Of Electric Utility		$103	$35,141	685,365	23	417,846	17	341
Boscobel Municipal Utilities		$5	$1,617	35,224	10	19,228	6	310
Brodhead Water And Light Commission		$12	$3,581	86,357	15	42,585	7	302
Cashton Municipal Electric And Water Utility		$21	$2,104	45,278	12	25,017	6	101
Cedarburg Light And Water Commission		$10	$7,923	149,986	41	94,207	27	830
Centuria Municipal Electric Utility		$11	$753	18,810	3	8,956	1	69
City of Argyle		$8	$723	19,058	4	8,592	1	96
City of Kiel		$10	$3,539	65,807	18	42,078	12	353
City of Lodi		$7	$1,740	43,087	10	20,696	5	262
City of Muscoda		$29	$5,865	154,092	42	69,734	19	200
City of New Richmond		$2	$1,227	28,817	8	14,595	4	618
City of Westby		$4	$730	16,641	5	8,678	3	184
Columbus Water And Light Dept		$6	$2,272	40,910	10	27,013	7	407
Consolidated Water Power Company	CWP	$2	$399	6,867	2	4,744	1	182
Cornell Municipal Water And Electric Utility		$42	$6,002	146,449	45	71,366	22	143
Cuba City Electric & Water Utility		$1	$85	1,386	0	1,008	0	135
Cumberland Municipal Utility		$266	$59,688	1,383,768	381	709,722	198	224
Dahlberg Light And Power Company	DLP	$16	$17,096	370,849	72	203,281	40	1,080
Eagle River Light And Water Commission		$23	$12,650	214,672	62	150,418	45	548
Eau Claire Electric Cooperative	C-8	$21	$10,586	235,558	80	125,875	41	506
Elroy Municipal Electric And Water Utility		$10	$1,336	22,264	7	15,882	6	140
Evansville City of Water & Light		$16	$9,506	185,430	40	113,035	23	583
Florence Utility Commission		$0	$34	661	0	406	0	164
Hartford City Of Utilities		$98	$74,044	1,875,423	524	880,426	261	755
Hustisford Utilities		$13	$2,426	60,725	16	28,850	8	187
Jefferson Utilities		$40	$20,569	564,460	139	244,580	58	515
Juneau Utility Commission		$11	$2,098	51,790	10	24,947	4	186
Kaukauna Utilities		$34	$50,920	1,162,700	332	605,468	170	1,503
La Farge Municipal Electric Utility		$45	$4,945	95,363	28	58,798	13	111
Lake Mills Light And Water Dept		$13	$5,233	128,380	27	62,223	13	418
Madison Gas And Electric Company	MGE	$98	$1,772,908	37,782,829	7,418	21,080,954	4,409	18,070
Manitowoc Public Utilities		$27	$46,907	989,567	275	557,751	164	1,721
Mazomanie Electric Utility		$11	$1,119	27,821	7	13,308	4	106
Medford Electric Utility		$148	$81,518	2,260,268	564	969,303	229	551
Menasha Electric & Water Utilities		$16	$12,624	303,093	72	150,109	37	794
Mount Horeb Electric Utility		$5	$2,186	52,470	13	25,992	7	476

Utility	Map Code	Annual Dollars per Capita	Annual Dollars Saved	Annual Verified kWh	Annual Verified kW	Annual Net kWh	Annual Net kW	Number of Customers
New Glarus Light And Water Works		$29	$5,313	100,967	25	63,173	17	184
New Holstein Public Utility		$48	$15,906	389,236	104	189,128	53	331
New London Electric & Water Utility		$9	$4,664	115,240	32	55,454	16	502
North Central Power Company Inc	NCP	$59	$24,795	603,392	113	294,825	49	423
Northwestern Wisconsin Electric Co	NWE	$4,180	$117,052	2,549,647	601	1,391,818	334	28
Oconomowoc City Of Utilities		$41	$44,388	1,077,701	291	527,794	150	1,070
Oconto Falls Water And Light Commission		$4	$1,170	25,017	7	13,915	4	268
Pierce-Pepin Electric Cooperative	C-14	$29	$8,977	226,650	58	106,744	28	305
Pioneer Power & Light Company	PPL	$105	$12,753	319,401	59	151,638	29	121
Plymouth Utilities		$14	$12,399	277,654	88	147,435	49	879
Polk-Burnett Electric Cooperative	C-15	$86	$81,132	2,040,083	501	964,710	236	942
Price Electric Cooperative Inc	C-16	$60	$13,475	338,911	88	160,230	41	223
Princeton Municipal Water & Electric Utility		$32	$5,164	114,686	30	61,405	18	163
Reedsburg Utility Commission		$42	$27,614	620,674	175	328,353	100	662
Rice Lake Municipal Water & Electric Utility		$10	$8,294	178,661	48	98,623	30	836
Richland Center Electric Utility		$50	$24,902	628,970	176	296,099	88	495
Richland Electric Cooperative	C-17	$151	$27,504	582,141	131	327,035	67	182
River Falls Municipal Utility		$27	$17,330	383,175	106	206,060	60	647
Riverland Energy Cooperative	C-18	$4	$4,406	109,734	26	52,395	12	1,056
Rock County Electric Cooperative	C-19	$20	$12,985	335,534	160	154,401	77	640
Scenic River Electric Cooperative	C-20	$112	$63,135	1,366,470	396	750,716	204	562
Shawano Municipal Utilities		$43	$52,739	1,167,567	298	627,097	166	1,238
Sheboygan Falls Utilities		$5	$2,446	58,760	16	29,080	8	458
Shullsburg Electric Utility		$5	$793	20,662	5	9,429	2	168
Slinger Utilities		$6	$1,909	45,518	13	22,694	7	302
Spooner Municipal Utilities		$48	$16,560	400,681	53	196,912	31	347
Stoughton Electric Utility		$11	$8,542	157,849	40	101,572	23	799
Stratford Municipal Water & Electric Utility		$35	$5,294	94,170	22	62,955	17	151
Sturgeon Bay Utilities		$33	$48,087	1,074,787	317	571,789	182	1,464
Sun Prairie Water & Light Commission		$10	$15,286	315,215	88	181,757	54	1,606
Superior Water Light And Power Company	SWL	$51	$95,983	2,151,136	573	1,141,299	366	1,871
Two Rivers Water & Light Utility		$20	$14,239	287,422	56	169,309	31	707
Village of Belmont		$4	$419	7,367	1	4,988	1	98
Village of Benton		$19	$1,547	31,701	6	18,395	4	82
Village of Cadott		$811	$6,490	129,125	34	77,165	16	8
Village of Gresham		$6	$975	23,755	7	11,591	3	161
Village of Pardeeville		$15	$2,043	33,513	10	24,296	7	135
Village of Prairie Du Sac		$12	$3,121	78,686	21	37,108	10	265
Village of Viola		$0	$0	0	0	0	0	85
Village of Waunakee		$30	$15,569	349,056	223	185,125	114	517
Waterloo Water And Light Commission		$16	$4,748	94,023	30	56,457	18	300
Waupun Public Utilities		$42	$22,086	537,599	131	262,615	66	520
We Energies	WEP	$68	$6,969,208	149,187,174	32,156	82,868,113	18,315	103,051
Westfield Electric Co		$0	$0	0	0	0	0	129
Whitehall Municipal Electric Utility		$1	$261	6,203	2	3,107	1	198

Utility	Map Code	Annual Dollars per Capita	Annual Dollars Saved	Annual Verified kWh	Annual Verified kW	Annual Net kWh	Annual Net kW	Number of Customers
Wisconsin Dells Municipal Electric Utility		$24	$16,347	345,785	95	194,375	56	689
Wisconsin Public Service Corporation	WPS	$97	$4,379,018	91,291,736	24,039	52,069,175	14,127	45,128
Wonewoc Electric & Water Utility		$0	$7	232	0	80	0	79
Xcel Energy	NSP	$67	$2,550,202	54,169,283	14,573	30,323,446	8,556	38,263
Not mapped*			$1,884,769	38,333,746	9,273	22,411,049	5,493	

* *Unknown Utility:* The impacts for these participants are not mapped either because their address information is not complete or because their address falls out of the boundaries of participating utility territory according to the GIS mapping application.

Figure A-5.
Commercial Programs
Per Capita Energy, Gas Bill Savings by Gas Utility
Net Cumulative Savings (July 1, 2001–June 30, 2008)

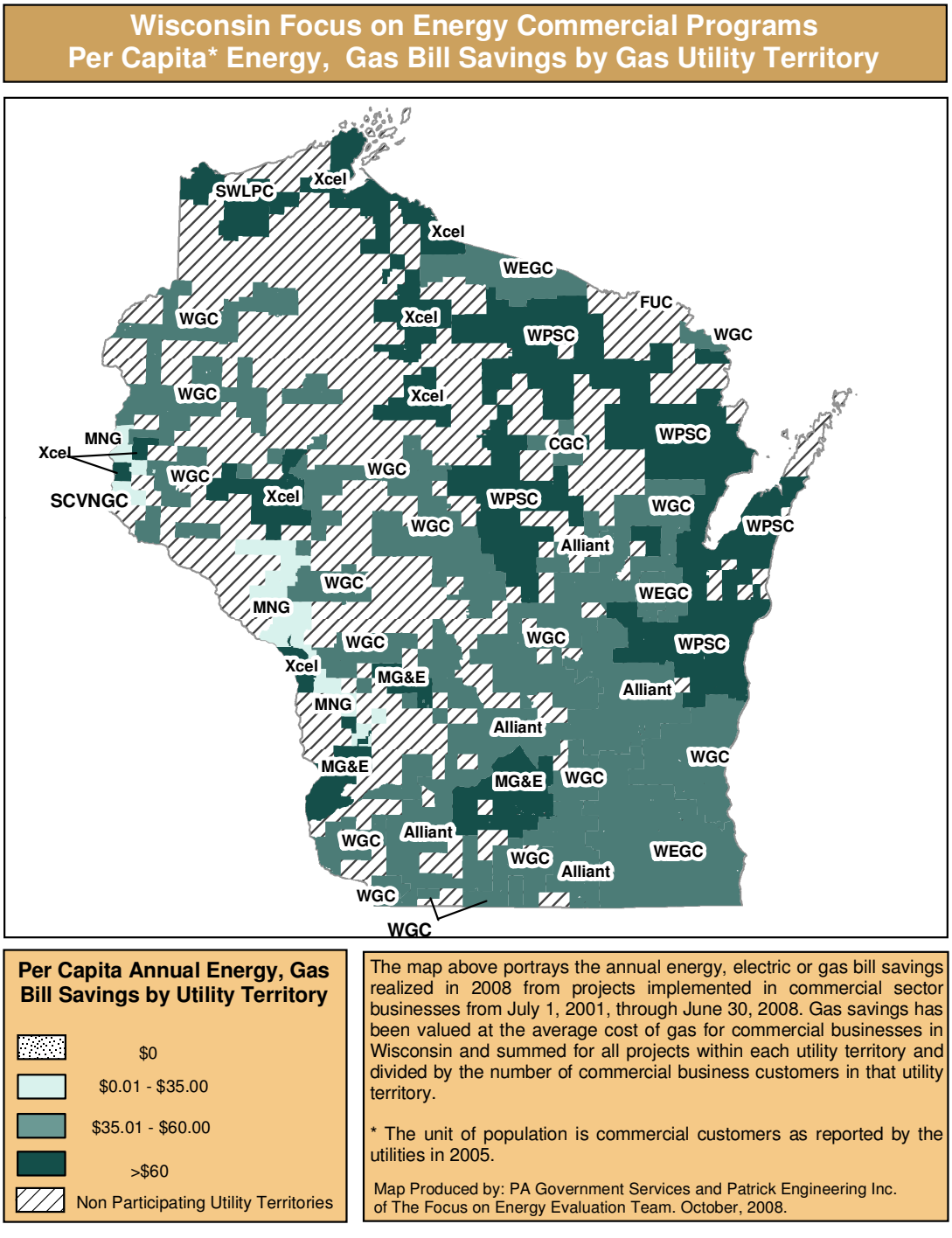


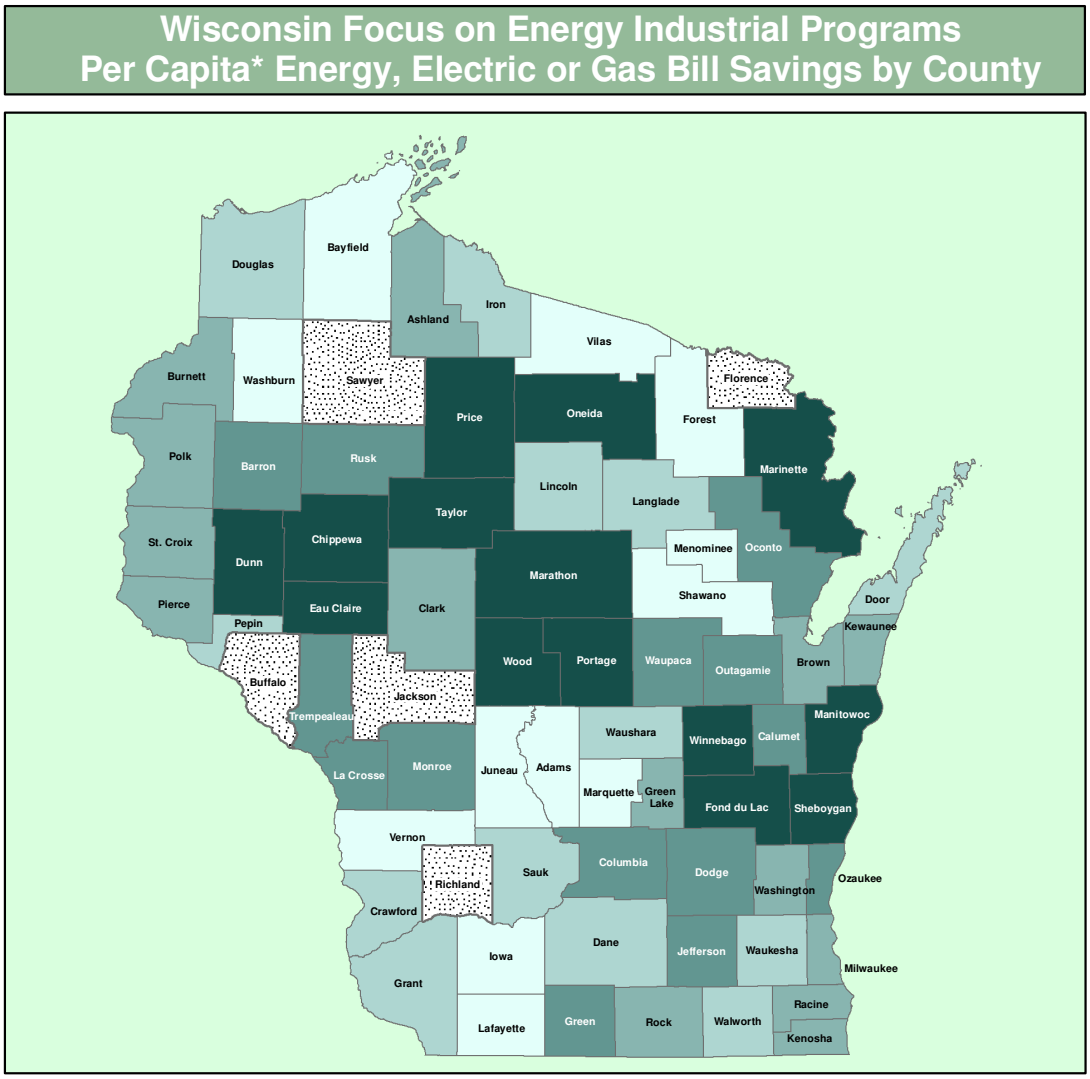
Table A-5. Commercial Program Gas Impacts
(By Participating Gas Utility)
Net Cumulative Savings (July 1, 2001–June 30, 2008)

Utility	Map Code	Annual Dollars per Capita	Annual Dollars Saved	Annual Verified Therms	Annual Net Therms	Number of Customers
Alliant/Wisconsin Power & Light	Alliant	$60	$1,098,072	2,204,122	1,088,277	18,332
City Gas Company	CGC	$39	$22,533	49,001	22,332	575
Florence Utility Commission	FUC	$5	$567	1,108	562	117
Madison Gas and Electric	MG&E	$64	$859,456	2,194,675	851,790	13,522
Midwest Natural Gas Inc.	MNG	$19	$28,297	52,539	28,045	1,461
St Croix Valley Natural Gas Company	SCVNGC	$27	$15,118	29,609	14,983	551
Superior Water Light And Power Company	SWLPC	$126	$142,567	274,598	141,295	1,132
Wisconsin Electric Gas Operations	WEGC	$39	$1,376,843	2,910,149	1,364,562	35,313
Wisconsin Gas Company	WGC	$54	$2,699,608	5,637,525	2,675,529	49,892
Wisconsin Public Service Corporation	WPSC	$79	$2,026,376	3,929,382	2,008,302	25,798
Xcel (Northern States Power Company)	Xcel	$68	$756,027	1,662,628	749,283	11,129
Not mapped*			$576,372	1,167,369	571,231	

* *Unknown Utility:* The impacts for these participants are not mapped either because their address information is not complete or because their address falls out of the boundaries of participating utility territory according to the GIS mapping application.

A.2.2 Industrial Programs

Figure A-6.
Industrial Programs
Per Capita Energy, Electric or Gas Bill Savings by County
Net Cumulative Savings (July 1, 2001–June 30, 2008)



The map above portrays the annual energy, electric or gas bill savings realized in 2008 from projects implemented in industrial sector businesses from July 1, 2001, through June 30, 2008. Electric and gas savings have been valued at the average cost of gas and electricity for industrial businesses in Wisconsin and summed for all projects within each county and divided by the number of eligible industrial businesses in that county.

* The unit of population is industrial customers in industries targeted by the industrial programs in participating utility territories.

Map Produced by: PA Government Services and Patrick Engineering Inc.
of The Focus on Energy Evaluation Team. October 2008.

Table A-6. Industrial Program Energy Impacts
(By County)
Net Cumulative Savings (July 1, 2001–June 30, 2008)

County	Annual Dollars per Capita	Annual Verified kWh	Annual Verified kW	Annual Verified Therms	Annual Net kWh	Annual Net kW	Annual Net Therms	Eligible Participants
Adams	$24	86,486	18	0	52,812	11	0	128
Ashland	$226	2,092,614	331	22,522	965,524	141	11,279	300
Barron	$308	2,729,089	469	156,046	1,558,950	257	67,270	513
Bayfield	$24	91,990	13	10,992	52,866	7	4,085	300
Brown	$293	26,121,223	4,552	1,062,165	13,502,028	2,211	548,700	4,550
Burnett	$152	1,486,051	142	0	649,706	65	0	252
Calumet	$317	3,217,441	524	67,961	1,640,404	253	26,353	386
Chippewa	$953	13,789,486	1,686	718,048	7,592,591	875	387,151	868
Clark	$263	2,076,274	289	173,634	1,143,789	141	68,998	514
Columbia	$332	3,613,632	352	240,500	2,284,508	228	151,635	853
Crawford	$116	704,297	90	2,799	510,816	64	1,153	268
Dane	$93	15,166,057	2,523	404,337	8,033,574	1,375	218,635	7,409
Dodge	$351	5,819,284	942	365,441	3,070,789	471	245,703	1,204
Door	$84	729,835	76	42,587	306,714	29	24,705	505
Douglas	$143	1,110,428	423	123,754	554,006	213	76,622	753
Dunn	$994	7,432,297	1,095	399,818	4,128,382	552	268,260	510
Eau Claire	$681	10,667,742	1,253	1,415,083	5,325,428	588	836,857	1,669
Fond du Lac	$611	28,086,265	4,083	460,615	12,229,515	1,687	220,246	1,531
Forest	$35	285,173	72	0	147,324	34	0	249
Grant	$66	637,060	24	72,178	309,497	-3	24,365	638
Green	$517	5,119,723	839	6,868	3,173,876	493	6,340	373
Green Lake	$173	715,749	134	161,670	388,403	68	102,881	718
Iowa	$15	209,070	48	2,205	100,787	20	1,403	490
Iron	$58	396,049	21	0	170,326	11	0	174
Jefferson	$511	5,561,223	912	650,686	2,706,511	467	404,558	1,091
Juneau	$15	137,771	29	0	41,036	9	0	160
Kenosha	$155	3,834,425	817	273,122	2,098,886	421	155,284	1,786
Kewaunee	$274	684,110	119	142,209	358,839	54	85,485	384
La Crosse	$335	12,345,367	2,119	476,421	5,726,550	1,031	314,758	1,931
Lafayette	$31	169,284	33	0	114,670	18	0	220
Langlade	$112	773,440	107	52,939	462,750	61	24,750	461
Lincoln	$85	827,229	114	42,721	445,400	57	26,700	618
Manitowoc	$607	3,966,367	725	248,683	2,237,012	387	155,740	469
Marathon	$718	20,989,942	3,490	1,637,956	11,548,755	1,812	996,463	2,310
Marinette	$770	321,964	329	1,081,257	173,613	173	681,953	885
Marquette	$49	266,739	47	0	159,686	27	0	192
Menominee	$28	29,712	6	0	16,251	3	0	34
Milwaukee	$238	33,875,538	4,902	4,313,608	16,750,265	2,355	1,897,384	11,962
Monroe	$496	5,894,039	472	320,256	3,359,228	255	145,264	686
Oconto	$454	760,172	254	235,825	452,424	161	143,131	369
Oneida	$1,789	1,612,383	342	2,465,798	888,282	190	1,929,070	1,090
Outagamie	$554	32,321,388	4,362	959,063	16,988,748	1,325	571,188	2,816

County	Annual Dollars per Capita	Annual Verified kWh	Annual Verified kW	Annual Verified Therms	Annual Net kWh	Annual Net kW	Annual Net Therms	Eligible Participants
Ozaukee	$339	8,187,901	936	595,124	3,809,755	403	296,757	1,522
Pepin	$117	315,619	60	10,715	172,146	30	6,761	143
Pierce	$181	1,219,881	190	60,650	580,481	81	28,554	343
Polk	$230	4,551,251	1,402	32,565	2,399,114	702	19,053	694
Portage	$1,689	11,013,657	1,456	3,079,611	5,575,879	693	1,525,414	1,083
Price	$10,894	11,451,074	1,330	3,541,113	5,768,754	631	2,323,469	241
Racine	$146	6,059,334	1,101	467,662	2,956,281	518	275,327	3,047
Rock	$167	8,625,874	1,402	232,224	4,287,421	639	139,956	2,328
Rusk	$325	2,030,112	249	35,800	923,884	103	19,037	225
Sauk	$79	2,929,626	352	673	1,098,063	144	237	821
Shawano	$56	557,434	89	0	317,707	47	0	333
Sheboygan	$2,294	22,686,261	2,975	3,984,456	12,079,754	1,521	2,718,931	1,476
St. Croix	$186	3,999,637	640	97,405	2,055,434	306	51,312	921
Taylor	$1,938	831,839	153	100,726	465,924	77	58,801	44
Trempealeau	$440	1,127,407	146	109,914	621,156	74	55,979	208
Vernon	$35	308,166	45	3,495	165,572	24	1,646	324
Vilas	$40	598,426	62	0	325,789	35	0	476
Walworth	$133	5,962,304	1,098	86,566	3,297,997	573	36,802	1,735
Washburn	$26	271,575	54	611	149,756	27	215	343
Washington	$148	5,230,517	888	232,751	2,795,530	443	112,582	1,864
Waukesha	$116	20,942,442	3,035	608,808	10,681,455	1,527	366,990	8,512
Waupaca	$493	2,060,917	316	467,789	1,165,866	165	356,438	850
Waushara	$92	398,045	119	44,167	213,102	56	19,662	346
Winnebago	$691	22,232,775	3,250	1,658,821	11,628,491	1,646	992,491	2,404
Wood	$3,674	11,088,341	1,382	1,700,355	5,723,016	611	1,196,481	412
Not mapped*		2,065,062	200	197,992	1,180,359	108	125,742	

* *Unknown County:* The impacts for these participants are not mapped either because their address information is not complete or because their address falls out of the boundaries of participating utility territory according to the GIS mapping application.

Figure A-7.
Industrial Programs
Implemented Energy, Electric or Gas Bill Savings by Senate District
Net Cumulative Savings (July 1, 2001–June 30, 2008)

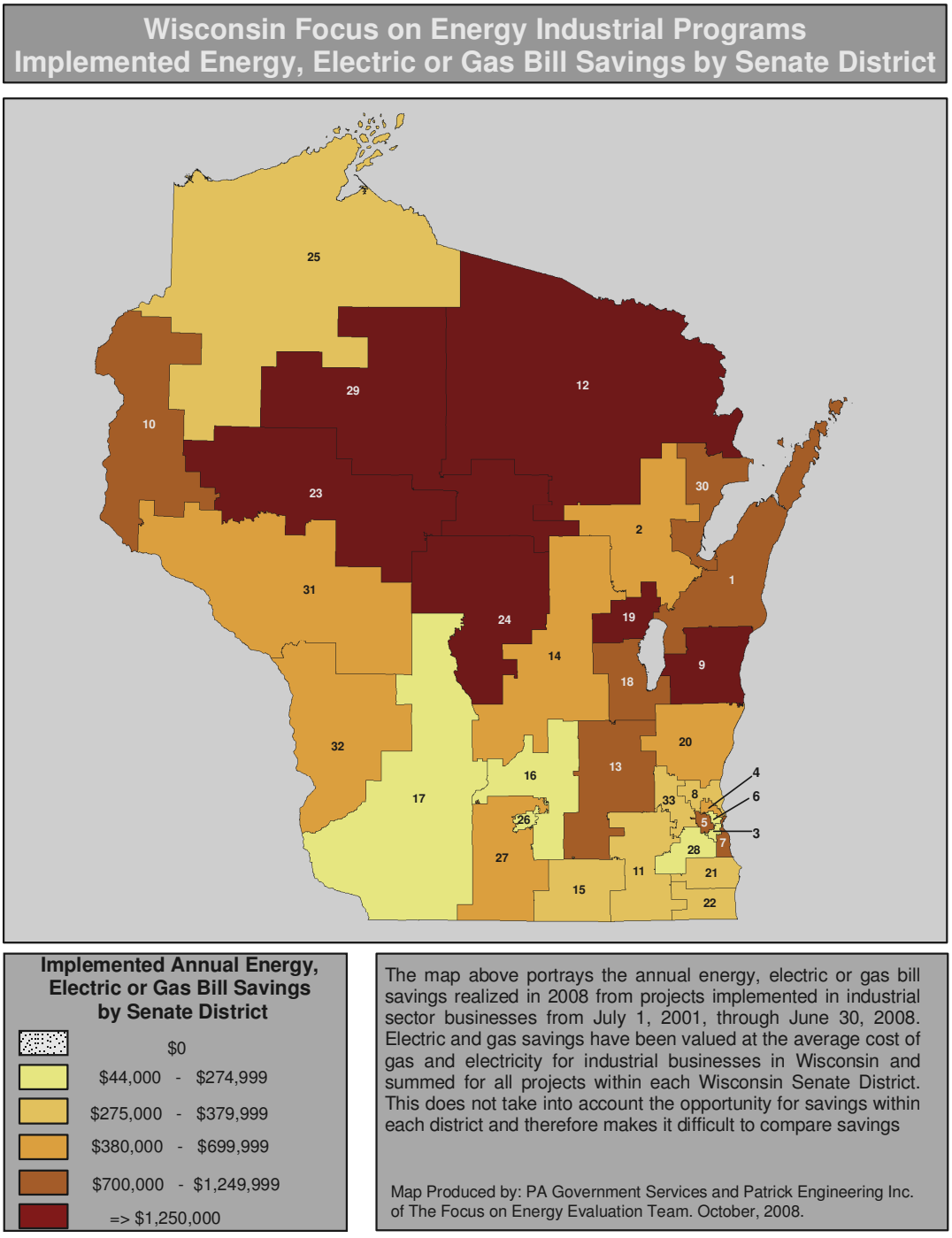


Table A-7. Industrial Program Energy Impacts
(By Senate District)
Net Cumulative Savings (July 1, 2001–June 30, 2008)

Senate District	Annual Dollars Saved	Annual Verified kWh	Annual Verified kW	Annual Verified Therms	Annual Net kWh	Annual Net kW	Annual Net Therms
1	$910,574	17,609,185	2,196	769,648	8,165,028	988	437,469
2	$520,027	10,565,503	1,855	392,807	5,300,148	850	211,766
3	$44,749	1,025,837	186	26,180	573,564	100	11,203
4	$542,324	5,684,185	935	805,640	3,134,882	496	363,814
5	$809,472	10,958,064	1,111	1,217,400	4,127,388	425	575,998
6	$76,278	1,128,276	86	92,047	570,653	41	43,419
7	$938,135	5,739,085	872	1,932,057	3,395,701	471	750,475
8	$361,947	11,347,187	2,057	56,087	5,706,849	974	26,814
9	$3,329,416	20,989,607	2,837	3,916,188	11,330,295	1,474	2,706,499
10	$899,826	17,674,507	3,295	582,982	9,237,938	1,614	362,434
11	$375,849	5,517,510	971	348,688	3,058,278	524	199,210
12	$2,123,619	4,448,767	661	2,599,621	2,497,051	360	2,008,936
13	$745,134	10,183,774	1,664	655,922	5,004,384	824	458,208
14	$676,557	5,542,577	1,140	706,900	3,257,139	573	492,924
15	$314,264	6,521,553	1,154	232,179	3,002,980	479	139,927
16	$163,442	3,738,385	546	106,250	1,958,283	279	49,080
17	$91,053	3,174,220	301	72,178	1,140,784	90	24,365
18	$1,211,924	38,462,548	5,363	398,674	17,640,487	2,383	177,503
19	$1,893,408	26,596,954	4,031	1,742,022	14,703,032	1,230	1,045,600
20	$694,803	11,879,339	1,400	837,338	5,554,824	616	374,166
21	$340,725	5,154,511	912	327,005	2,438,064	419	200,576
22	$276,479	2,937,826	625	345,469	1,579,921	317	186,565
23	$1,695,946	20,272,336	2,486	1,996,640	10,508,656	1,210	1,095,566
24	$3,235,553	19,491,152	2,455	4,748,706	9,809,225	1,103	2,702,003
25	$300,888	5,060,196	1,049	309,115	2,499,652	515	156,411
26	$266,531	5,267,545	727	201,683	2,624,207	422	114,053
27	$382,614	9,180,391	1,665	102,534	5,479,970	956	61,374
28	$274,993	3,890,669	601	311,095	2,139,250	318	151,631
29	$4,085,303	30,331,436	4,289	5,005,437	15,864,013	2,129	3,203,759
30	$1,126,721	8,623,250	2,076	1,566,203	4,278,511	1,061	889,374
31	$594,290	8,077,657	761	644,901	4,508,244	397	334,558
32	$633,802	12,264,130	1,995	453,747	5,773,233	980	299,121
33	$298,247	8,030,167	997	117,307	3,688,877	457	82,664
Not mapped*	$3,489,444	56,131,556	8,805	2,539,105	32,308,698	4,714	1,615,541

* *Unknown District:* The impacts for these participants are not mapped either because their address information is not complete or because their address falls out of the boundaries of participating utility territory according to the GIS mapping application.

Figure A-8.
Industrial Programs
Implemented Energy, Electric or Gas Bill Savings by Assembly District
Net Cumulative Savings (July 1, 2001–June 30, 2008)

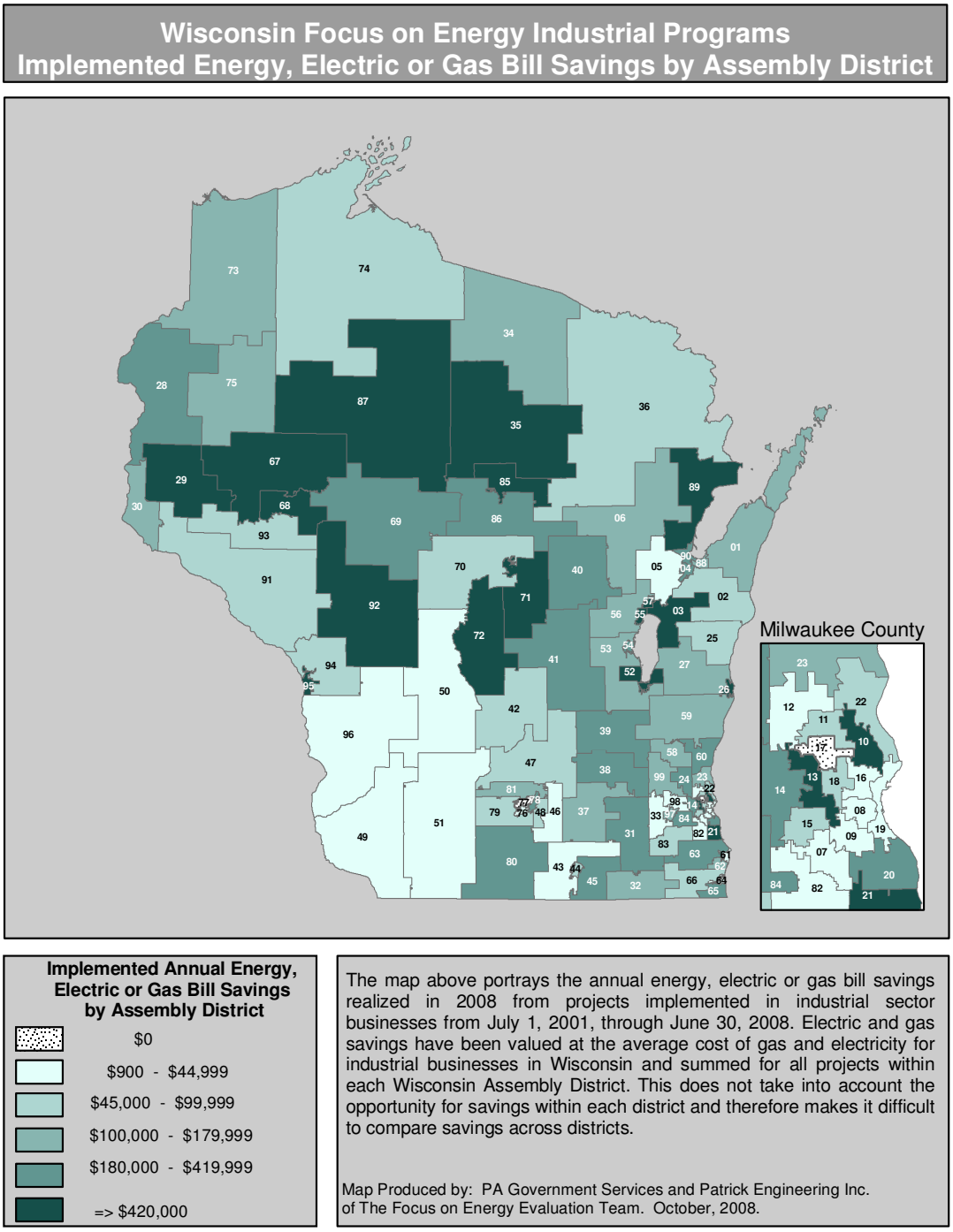


Table A-8. Industrial Program Energy Impacts
(By Assembly District)
Net Cumulative Savings (July 1, 2001–June 30, 2008)

Assembly District	Annual Dollars Saved	Annual Verified kWh	Annual Verified kW	Annual Verified Therms	Annual Net kWh	Annual Net kW	Annual Net Therms
1	$104,956	1,362,951	184	119,580	635,470	77	68,689
2	$77,175	2,154,630	308	18,139	1,179,776	158	7,931
3	$728,443	14,091,604	1,704	631,929	6,349,782	753	360,850
4	$368,887	9,528,341	1,625	185,416	4,745,227	732	91,329
5	$37,087	796,429	173	26,518	425,869	88	12,242
6	$114,052	240,732	57	180,873	129,052	29	108,195
7	$964	32,159	6	0	16,396	3	0
8	$28,622	796,746	139	4,440	439,491	73	2,826
9	$15,163	196,932	41	21,740	117,677	24	8,378
10	$431,059	3,676,186	639	690,410	2,050,971	345	315,510
11	$94,622	1,472,779	187	115,230	800,866	98	48,304
12	$16,643	535,219	109	0	283,045	53	0
13	$513,241	3,292,517	147	1,020,361	1,362,379	67	440,176
14	$244,052	5,601,031	674	185,720	1,984,220	250	129,451
15	$52,179	2,064,515	290	11,319	780,789	107	6,371
16	$4,828	177,363	24	1,120	72,582	11	569
18	$71,450	950,913	62	90,927	498,071	31	42,849
19	$33,908	579,983	57	36,487	288,560	26	17,217
20	$401,114	2,019,628	421	958,221	1,109,203	218	341,354
21	$503,113	3,139,474	393	937,349	1,997,937	227	391,904
22	$46,537	1,657,773	382	1,426	783,219	145	491
23	$130,096	4,130,819	733	18,197	2,064,229	354	8,861
24	$185,314	5,558,596	942	36,465	2,859,401	475	17,461
25	$50,119	686,722	130	50,812	350,379	64	29,996
26	$3,177,407	20,001,541	2,622	3,648,446	10,845,939	1,363	2,580,961
27	$101,890	301,344	86	216,930	133,977	47	95,541
28	$194,666	6,077,467	1,578	25,109	3,071,196	784	14,308
29	$572,116	8,486,292	1,223	474,326	4,523,141	594	311,133
30	$133,044	3,110,749	494	83,546	1,643,601	236	36,992
31	$226,396	975,066	189	343,879	560,344	108	196,593
32	$116,935	3,529,911	604	1,911	1,974,601	328	842
33	$32,518	1,012,533	178	2,898	523,333	88	1,775
34	$145,364	1,936,981	380	137,952	1,069,828	213	83,799
35	$1,904,196	1,444,303	196	2,408,245	805,775	105	1,887,009
36	$74,059	1,067,483	86	53,424	621,447	42	38,128
37	$161,002	3,612,245	450	120,378	1,542,986	204	71,417
38	$247,938	975,168	313	301,506	517,915	170	221,020
39	$336,194	5,596,360	901	234,037	2,943,482	450	165,770
40	$412,887	2,036,684	313	457,968	1,161,581	165	350,189
41	$190,752	1,750,455	558	248,259	859,418	227	142,498
42	$72,919	1,755,438	270	673	1,236,139	181	237
43	$22,341	721,036	290	14,593	268,113	95	6,683

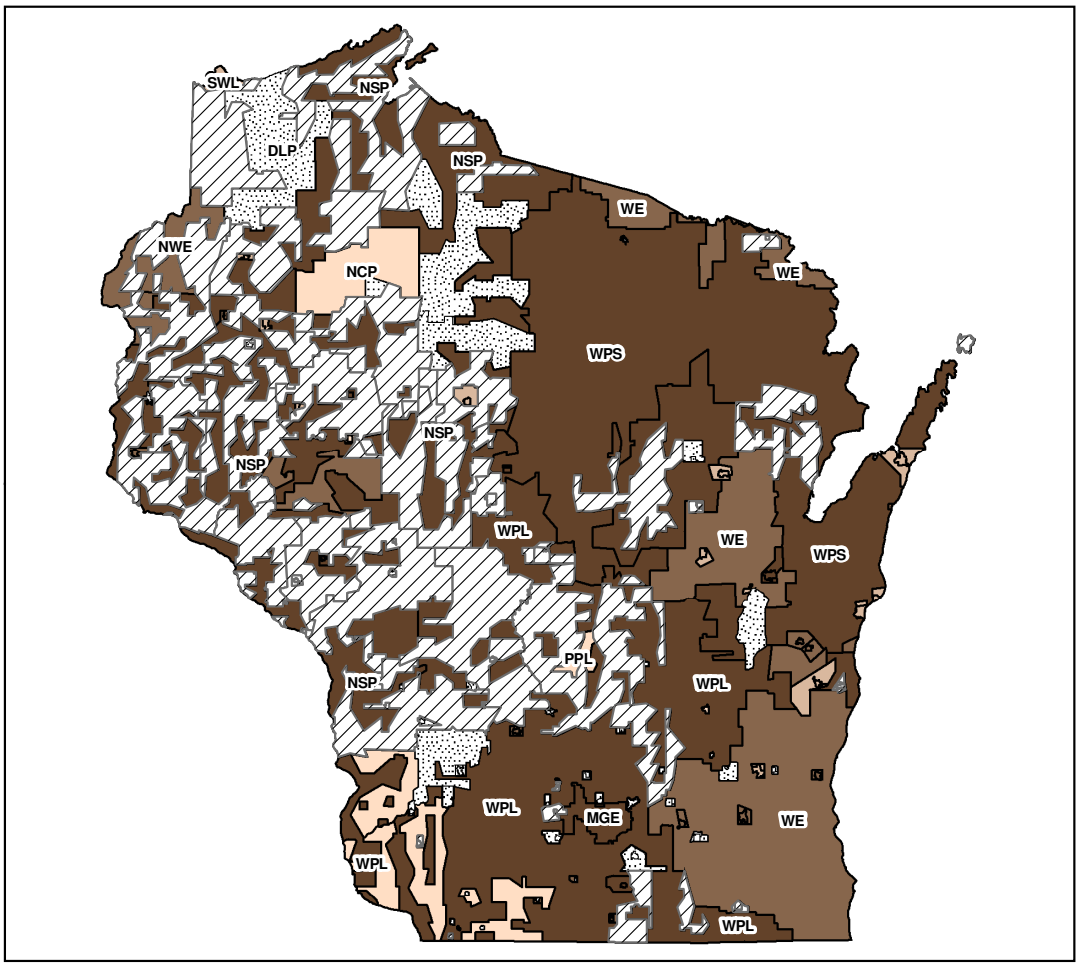
Assembly District	Annual Dollars Saved	Annual Verified kWh	Annual Verified kW	Annual Verified Therms	Annual Net kWh	Annual Net kW	Annual Net Therms
44	$73,022	1,357,911	229	85,107	722,220	114	31,052
45	$218,901	4,442,605	635	132,479	2,012,647	270	102,192
46	$32,698	299,242	67	33,316	217,089	47	20,258
47	$78,139	2,514,470	298	4,347	1,284,560	149	2,649
48	$52,604	924,673	182	68,587	456,634	83	26,173
49	$43,977	680,096	27	72,178	340,172	0	24,365
50	$2,413	137,771	29	0	41,036	9	0
51	$44,663	2,356,353	246	0	759,577	81	0
52	$833,826	26,789,398	3,665	349,833	11,556,041	1,519	156,841
53	$104,891	2,916,148	580	8,707	1,697,991	320	5,131
54	$273,207	8,757,002	1,119	40,133	4,386,455	544	15,532
55	$1,003,659	6,082,089	918	1,392,992	3,124,561	467	833,268
56	$175,639	5,060,138	879	54,991	2,534,364	430	27,051
57	$714,110	15,454,727	2,235	294,039	9,044,106	333	185,281
58	$140,550	2,932,009	407	156,699	1,492,951	197	53,623
59	$136,310	2,005,863	258	251,488	875,637	108	86,202
60	$417,943	6,941,467	735	429,151	3,186,236	311	234,342
61	$32,999	608,922	140	43,045	254,584	58	18,323
62	$124,977	2,314,064	296	70,298	1,192,260	148	55,764
63	$182,749	2,231,524	477	213,662	991,219	212	126,489
64	$42,056	1,160,329	282	17,987	533,741	126	10,845
65	$181,407	1,102,283	214	253,343	686,539	129	143,332
66	$53,016	675,214	128	74,139	359,641	62	32,387
67	$583,113	8,179,229	1,025	601,106	4,462,820	536	325,914
68	$931,315	8,658,910	1,080	1,214,737	4,133,445	479	699,459
69	$181,518	3,434,196	380	180,796	1,912,390	195	70,193
70	$90,479	858,044	110	161,323	280,497	37	75,189
71	$1,654,330	8,560,748	1,069	2,887,028	4,198,690	489	1,430,333
72	$1,490,744	10,072,359	1,275	1,700,355	5,330,038	577	1,196,481
73	$104,810	1,017,032	405	123,754	500,233	203	76,622
74	$74,959	2,359,113	321	29,432	1,061,163	135	12,767
75	$121,120	1,684,051	324	155,930	938,256	176	67,023
76	$23,972	881,395	99	0	407,693	43	0
78	$242,559	4,386,150	628	201,683	2,216,514	378	114,053
79	$50,026	1,324,524	329	23,961	693,999	181	9,369
80	$228,007	5,802,186	954	31,234	3,501,438	543	22,483
81	$104,580	2,053,681	382	47,339	1,284,533	232	29,522
82	$27,733	842,299	120	2,063	450,126	55	1,287
83	$66,274	1,691,275	247	8,331	1,038,383	147	5,302
84	$180,985	1,357,095	234	300,700	650,741	115	145,042
85	$1,017,795	11,283,372	1,642	1,059,660	6,086,548	826	670,636
86	$321,646	5,853,653	1,114	268,138	3,264,263	598	131,816
87	$2,745,862	13,194,411	1,533	3,677,639	6,513,202	705	2,401,307
88	$123,672	4,265,427	541	18,785	1,953,330	210	8,960
89	$623,729	-636,142	396	1,068,687	-381,126	236	656,646
90	$379,319	4,993,965	1,139	478,731	2,706,307	615	223,769

Assembly District	Annual Dollars Saved	Annual Verified kWh	Annual Verified kW	Annual Verified Therms	Annual Net kWh	Annual Net kW	Annual Net Therms
91	$87,791	834,777	119	120,629	443,098	57	62,741
92	$452,866	5,538,670	439	524,272	3,153,035	238	271,817
93	$53,632	1,704,210	203	0	912,112	101	0
94	$69,732	778,201	182	65,282	482,522	113	42,032
95	$524,071	10,548,109	1,693	382,170	4,657,299	787	254,291
96	$39,998	937,821	120	6,295	633,413	80	2,798
97	$149,372	5,083,710	602	42,519	2,140,366	255	23,901
98	$34,257	966,008	188	2,983	552,416	101	1,803
99	$114,619	1,980,448	206	71,805	996,096	101	56,959
Not mapped*	$3,489,444	56,131,556	8,805	2,539,105	32,308,698	4,714	1,615,541

* *Unknown District:* The impacts for these participants are not mapped either because their address information is not complete or because their address falls out of the boundaries of participating utility territory according to the GIS mapping application.

Figure A-9.
Industrial Programs
Per Capita Energy, Electric Bill Savings by Electric Utility Territory
Net Cumulative Savings (July 1, 2001–June 30, 2008)

Wisconsin Focus on Energy Industrial Programs
Per Capita* Energy, Electric Bill Savings by Electric Utility Territory



Per Capita Annual Energy, Electric Bill Savings by Utility Territory

- $0
- $0.01 - $20.00
- $20.01 - $400.00
- $400.01 - $1,700.00
- > $1,700.00
- Non Participating Utility Territories

The map above portrays the annual energy, electric or gas bill savings realized in 2008 from projects implemented in industrial sector businesses from July 1, 2001, through June 30, 2008. Electric savings has been valued at the average cost of electricity for industrial businesses in Wisconsin and summed for all projects within each utility territory and divided by the number of industrial business customers in that utility territory.

* The unit of population is industrial customers as reported by the utilities in 2005.

Map Produced by: PA Government Services and Patrick Engineering Inc. of The Focus on Energy Evaluation Team. October, 2008.

Table A-9. Industrial Program Electric Impacts
(By Participating Electric Utility)
Net Cumulative Savings (July 1, 2001–June 30, 2008)

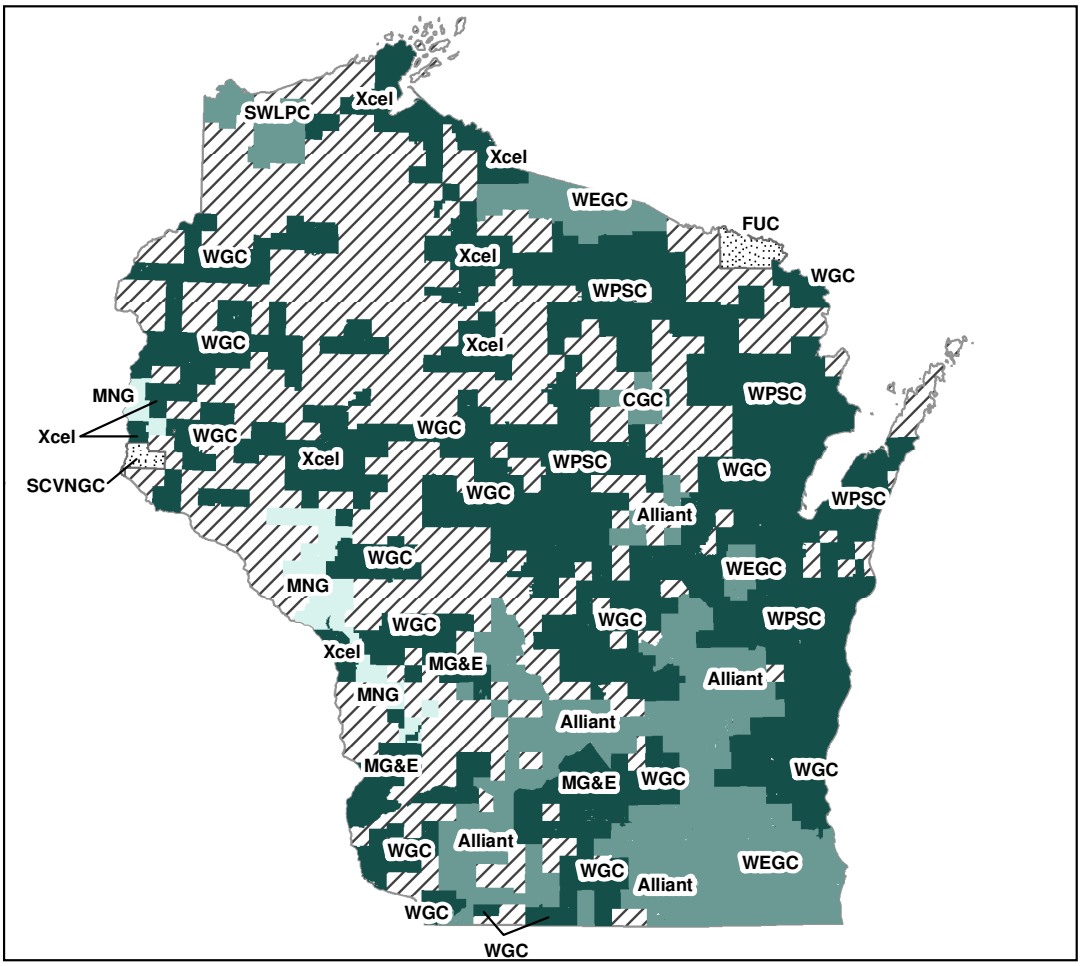
Utility	Map Code	Annual Dollars per Capita	Annual Dollars Saved	Annual Verified kWh	Annual Verified kW	Annual Net kWh	Annual Net kW	Number of Customers
Algoma Utility Commission		$538	$1,075	33,425	7	18,283	3	2
Alliant Energy	WPL	$2,717	$2,695,715	90,280,546	12,972	45,845,492	6,274	992
Arcadia Electric & Water Utility		$0	$0	0	0	0	0	54
Bloomer City Of Electric Utility		$297	$15,122	481,880	69	257,174	36	51
Brodhead Water And Light Commission		$953	$1,907	56,326	9	32,430	5	2
Cashton Municipal Electric And Water Utility		$0	$0	0	0	0	0	7
Cedarburg Light And Water Commission		$827	$3,310	99,361	20	56,286	10	4
Centuria Municipal Electric Utility		$0	$0	0	0	0	0	0
City of Argyle		$0	$0	0	0	0	0	6
City of Kiel		$443	$7,091	208,630	73	120,598	44	16
City of Muscoda		$0	$0	0	-44	0	-31	1
City of New Richmond		$0	$0	0	0	0	0	1
Columbus Water And Light Dept		$0	$0	0	0	0	0	1
Consolidated Water Power Company	CWP	$8,668	$8,668	256,043	31	147,419	16	1
Cornell Municipal Water And Electric Utility		$2,038	$20,378	551,220	78	346,558	47	10
Cumberland Municipal Utility		$1,372	$38,407	1,143,401	135	653,183	72	28
Dahlberg Light And Power Company	DLP	$0	$0	0	0	0	0	39
Eau Claire Electric Cooperative	C-8	$1,078	$8,622	302,273	110	146,635	51	8
Elroy Municipal Electric And Water Utility		$0	$0	0	0	0	0	13
Evansville City of Water & Light		$1,754	$3,508	113,520	10	59,658	5	2
Hartford City Of Utilities		$307	$2,457	72,571	14	41,783	8	8
Jefferson Utilities		$0	$0	0	0	0	0	4
Juneau Utility Commission		$0	$0	0	0	0	0	2
Kaukauna Utilities		$34,857	$278,857	10,837,320	1,179	4,742,461	508	8
La Farge Municipal Electric Utility		$0	$0	0	0	0	0	6
Lake Mills Light And Water Dept		$1,237	$2,473	73,054	12	42,061	7	2
Madison Gas And Electric Company	MGE	$5,826	$308,800	9,767,148	1,563	5,251,701	885	53
Manitowoc Public Utilities		$235	$100,322	2,963,431	500	1,706,162	268	426
Mazomanie Electric Utility		$0	$0	0	0	0	0	17
Medford Electric Utility		$317	$21,224	626,923	94	360,956	50	67
Menasha Electric & Water Utilities		$385	$4,623	137,360	25	78,621	13	12
Mount Horeb Electric Utility		$0	$0	0	0	0	0	0
New Glarus Light And Water Works		$628	$628	18,559	4	10,685	2	0
New Holstein Public Utility		$1,656	$1,656	46,856	3	28,171	2	1
New London Electric & Water Utility		$124	$745	22,145	3	12,672	2	6
North Central Power Company Inc	NCP	$18	$53	1,562	0	899	0	3
Northwestern Wisconsin Electric Co	NWE	$1,534	$42,944	1,640,702	164	730,337	76	28
Oconomowoc City Of Utilities		$675	$5,400	159,492	31	91,829	17	8
Oconto Falls Water And Light Commission		$2,179	$2,179	64,375	12	37,064	7	0
Pierce-Pepin Electric Cooperative	C-14	$241	$1,690	61,349	13	28,749	5	7
Pioneer Power & Light Company	PPL	$9	$265	7,826	3	4,506	2	29

Utility	Map Code	Annual Dollars per Capita	Annual Dollars Saved	Annual Verified kWh	Annual Verified kW	Annual Net kWh	Annual Net kW	Number of Customers
Plymouth Utilities		$298	$2,083	61,552	9	35,432	5	7
Polk-Burnett Electric Cooperative	C-15	$12,488	$24,977	710,841	40	424,777	25	2
Price Electric Cooperative Inc	C-16	$0	$0	0	0	0	0	0
Princeton Municipal Water & Electric Utility		$0	$0	0	0	0	0	17
Reedsburg Utility Commission		$705	$4,227	124,870	25	71,895	13	6
Rice Lake Municipal Water & Electric Utility		$69	$10,837	320,098	147	184,299	79	157
Richland Center Electric Utility		$0	$0	0	0	0	0	4
River Falls Municipal Utility		$629	$1,258	37,156	7	21,393	4	2
Riverland Energy Cooperative	C-18	$2,518	$2,518	117,388	14	42,827	5	0
Scenic River Electric Cooperative	C-20	$14	$275	8,538	2	4,670	1	19
Shawano Municipal Utilities		$99	$13,810	407,931	60	234,870	32	140
Sheboygan Falls Utilities		$0	$0	0	0	0	0	55
Shullsburg Electric Utility		$0	$0	0	0	0	0	12
Slinger Utilities		$0	$0	0	0	0	0	1
Spooner Municipal Utilities		$193	$3,087	94,863	19	52,498	10	16
Stoughton Electric Utility		$0	$0	0	0	0	0	3
Stratford Municipal Water & Electric Utility		$6,469	$12,939	398,462	80	220,049	41	2
Sturgeon Bay Utilities		$325	$650	19,210	4	11,060	2	2
Sun Prairie Water & Light Commission		$0	$0	0	0	0	0	3
Superior Water Light And Power Company	SWL	$251	$31,368	1,072,380	384	533,474	191	125
Two Rivers Water & Light Utility		$31	$93	4,767	0	1,582	0	3
Village of Belmont		$0	$0	0	0	0	0	13
Village of Benton		$1,839	$1,839	44,083	5	31,277	3	0
Village of Cadott		$3	$361	10,672	2	6,145	1	141
Village of Gresham		$0	$0	0	0	0	0	10
Village of Pardeeville		$0	$0	0	0	0	0	20
Village of Prairie Du Sac		$0	$0	0	0	0	0	1
Village of Viola		$0	$0	0	0	0	0	0
Village of Waunakee		$0	$0	0	0	0	0	4
Waterloo Water And Light Commission		$0	$0	0	0	0	0	1
Waupun Public Utilities		$3	$6	178	0	103	0	2
We Energies	WEP	$1,185	$3,517,258	115,448,683	16,453	59,817,310	7,307	2,969
Westfield Electric Co		$0	$0	0	0	0	0	39
Whitehall Municipal Electric Utility		$12,241	$12,241	361,564	42	208,173	22	1
Wisconsin Public Service Corporation	WPS	$10,288	$2,335,464	75,657,858	12,963	39,718,770	6,516	227
Wonewoc Electric & Water Utility		$0	$0	0	0	0	0	3
Xcel Energy	NSP	$26,563	$2,178,127	72,232,789	10,672	37,042,969	5,228	82
Not mapped*			$784,643	26,338,705	4,090	13,344,264	1,921	

* *Unknown Utility:* The impacts for these participants are not mapped either because their address information is not complete or because their address falls out of the boundaries of participating utility territory according to the GIS mapping application.

Figure A-10.
Industrial Programs
Per Capita Energy, Gas Bill Savings by Gas Utility
Net Cumulative Savings (July 1, 2001–June 30, 2008)

Wisconsin Focus on Energy Industrial Programs
Per Capita* Energy, Gas Bill Savings by Gas Utility Territory



Per Capita Annual Energy, Gas Bill Savings by Utility Territory

- $0
- $0.01 - $400.00
- $400.01 - $2,250.00
- > $2,250.00
- Non Participating Utility Territories

The map above portrays the annual energy, electric or gas bill savings realized in 2008 from projects implemented in commercial sector businesses from July 1, 2001, through June 30, 2008. Gas savings has been valued at the average cost of gas for commercial businesses in Wisconsin and summed for all projects within each utility territory and divided by the number of commercial business customers in that utility territory.

* The unit of population is commercial customers as reported by the utilities in 2005.

Map Produced by: PA Government Services and Patrick Engineering Inc. of The Focus on Energy Evaluation Team. October 2008

Table A-10. Industrial Program Gas Impacts
(By Participating Gas Utility)
Net Cumulative Savings (July 1, 2001–June 30, 2008)

Utility	Map Code	Annual Dollars per Capita	Annual Dollars Saved	Annual Verified Therms	Annual Net Therms	Number of Customers
Alliant/Wisconsin Power & Light	Alliant	$417	$983,411	1,579,297	999,402	2,360
City Gas Company	CGC	$1,215	$20,647	47,019	20,983	17
Florence Utility Commission	FUC	$0	$0		0	0
Madison Gas and Electric	MG&E	$2,645	$179,880	349,264	182,805	68
Midwest Natural Gas Inc.	MNG	$114	$9,123	25,092	9,271	80
St Croix Valley Natural Gas Company	SCVNGC	$0	$0	0	0	25
Superior Water Light And Power Company	SWLPC	$1,062	$75,396	123,754	76,622	71
Wisconsin Electric Gas Operations	WEGC	$2,240	$3,179,221	6,029,360	3,230,916	1,419
Wisconsin Gas Company	WGC	$3,227	$3,989,021	7,473,926	4,053,883	1,236
Wisconsin Public Service Corporation	WPSC	$6,207	$8,341,892	13,325,720	8,477,533	1,344
Xcel (Northern States Power Company)	Xcel	$165,074	$3,796,709	6,069,708	3,858,444	23
Not mapped*			$632,856	1,136,617	643,146	

* *Unknown Utility:* The impacts for these participants are not mapped either because their address information is not complete or because their address falls out of the boundaries of participating utility territory according to the GIS mapping application.

A.3 RESIDENTIAL PROGRAMS

In this section, we summarize the verified energy impacts across the Residential Programs through June 30, 2008. The tables and maps below provide energy savings that are based on the evaluators' review of participants, measures installed, and per-unit (measure) savings used by WECC program administrators.

Note: A change in the type of energy impacts data used for the Residential Programs maps. As explained in the Introduction to this Appendix (above), the data reported in all of the maps in this report are now *persistent net* energy impacts—a new type of reported energy impacts. As in the past, these are impact estimates based on evaluation work done to establish verified net for specific programs and/or program areas. However, as discussed in Section 1.1, *persistent net* is defined as:

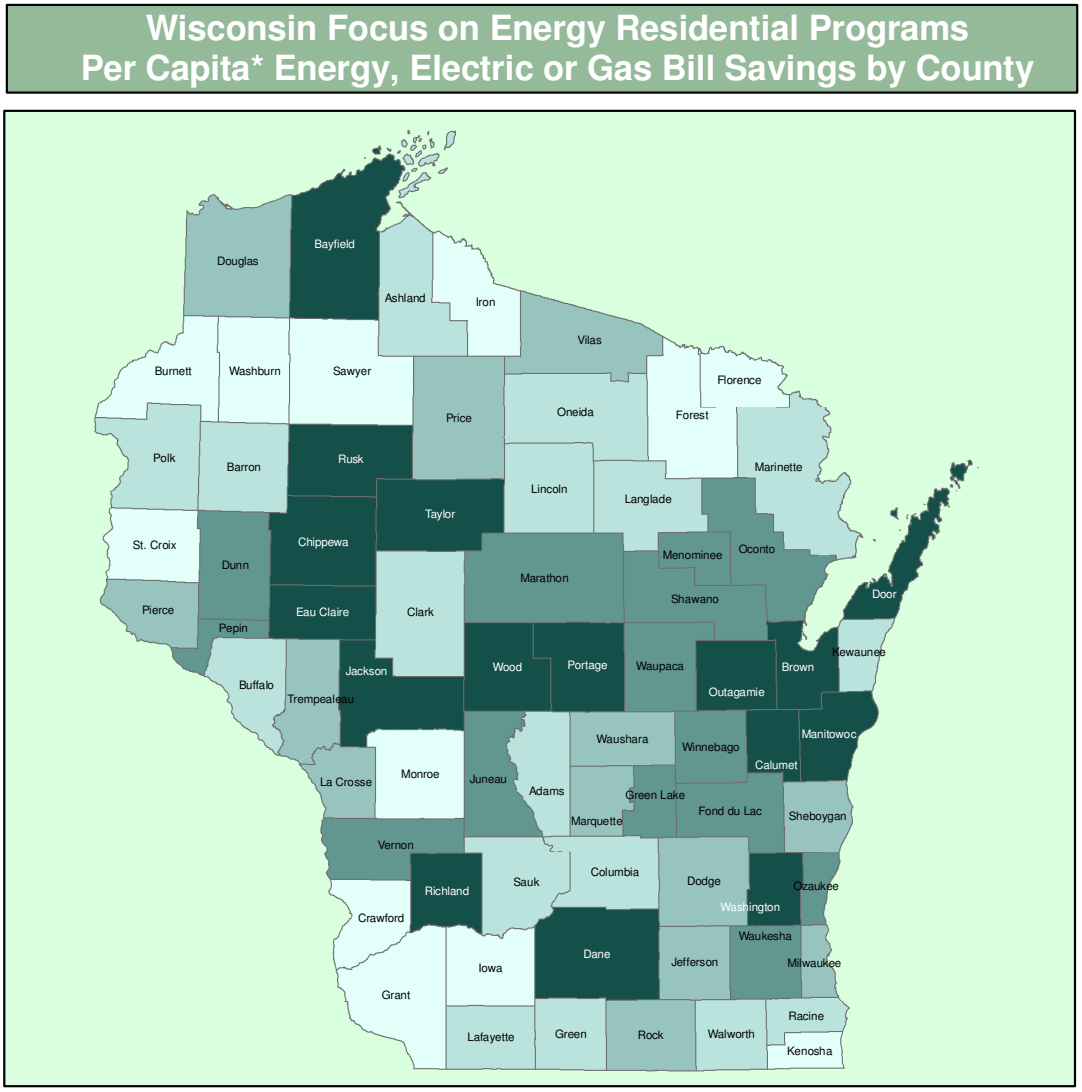
> Energy savings, expressed as *verified net*, that are lifecycle impacts that also include an exponential decay rate, such that half the savings remains after the measure life.

In order to provide some continuity in this transition in the basis for the mapped energy impacts, the tables that accompany the maps include a column for verified gross impacts—as in past reports impacts—though these are *lifecycle* verified gross impacts, and will therefore show some differences from past reports. Additional discussion of lifecycle and persistent savings is provided above in Section 2.0 and Section 2.8.

The *"Number of Customers (Households)"* for each county was estimated by determining the proportion of the area of each census block group that was within the boundaries of a utility participating in the Focus on Energy. This proportion was then applied to the population of that census block group to estimate the number of participating households within the block group. These block group estimates were then aggregated to the county level.

The *"Number of Customers"* presented for each of the participating utilities in Table A-14 are based on the number of customers reported by the utilities in 2005. The *"Number of Customers"* presented for each of the participating utilities in Table A-15 are based on the number of customers reported by the utilities in 2006.

Figure A-11.
Residential Programs
Per Capita Energy, Electric or Gas Bill Savings by County
Net Cumulative Savings (July 1, 2001–June 30, 2008)



The map above portrays the annual energy, electric or gas bill savings realized in 2008 from projects implemented in households from July 1, 2001, through June 30, 2008. Electric and gas savings have been valued at the average cost of gas and electricity in Wisconsin and summed for all projects within each county and divided by the number of eligible households in that county.

* The unit of population is residential customers in participating utility territories.

Map Produced by: PA Government Services and Patrick Engineering Inc. of The Focus on Energy Evaluation Team. October, 2008.

Table A-11. Residential Programs Energy Impacts
(by Participating County)
Net Cumulative Savings (July 1, 2001–June 30, 2008)

County	Annual Dollars per Capita	Annual Verified kWh	Annual Verified kW	Annual Verified Therms	Annual Net kWh	Annual Net kW	Annual Net Therms	Eligible Participants
Adams	$19	536,998	44	5,112	405,515	35	4,482	2,519
Ashland	$19	1,017,845	100	20,590	733,373	75	16,796	4,950
Barron	$20	2,047,121	188	18,595	1,525,081	146	16,276	9,114
Bayfield	$34	1,213,283	90	26,973	987,467	72	23,177	3,836
Brown	$34	27,863,489	3,565	726,292	21,523,202	2,804	604,288	87,295
Buffalo	$18	343,016	57	15,699	253,593	49	14,391	2,373
Burnett	$10	396,006	31	3,255	290,094	24	2,832	3,486
Calumet	$39	5,062,084	743	93,904	3,906,168	598	82,678	13,028
Chippewa	$37	5,725,832	480	82,218	4,078,995	372	70,899	13,563
Clark	$21	1,929,120	163	17,076	1,426,877	125	14,418	7,798
Columbia	$21	3,533,269	373	59,610	2,693,747	305	50,081	15,889
Crawford	$16	756,045	69	6,840	583,871	56	5,779	4,209
Dane	$42	54,230,010	6,653	2,211,881	41,765,305	5,513	1,896,938	154,704
Dodge	$24	7,074,391	1,121	107,868	5,359,044	908	89,365	27,767
Door	$34	2,301,810	251	21,874	1,761,148	206	20,306	6,178
Douglas	$23	3,882,184	273	66,506	2,762,498	210	50,549	14,885
Dunn	$27	2,792,036	264	24,721	2,085,087	199	19,823	8,903
Eau Claire	$40	13,349,567	1,260	158,953	10,534,053	1,028	131,317	30,944
Florence	$4	80,291	8	385	62,073	7	318	1,756
Fond du Lac	$33	11,797,557	1,632	272,730	9,183,105	1,349	228,692	36,540
Forest	$17	801,195	72	4,987	626,140	57	4,137	4,043
Grant	$17	1,938,250	215	29,245	1,442,793	176	25,044	10,565
Green	$19	2,375,295	360	36,555	1,778,512	300	31,706	11,716
Green Lake	$28	2,146,893	246	27,901	1,581,663	196	23,479	6,843
Iowa	$16	1,497,916	137	22,510	1,123,529	106	18,808	8,753
Iron	$11	278,261	21	4,200	209,129	16	3,483	2,384
Jackson	$61	734,098	54	3,735	539,900	40	3,257	981
Jefferson	$22	5,379,957	716	72,073	4,137,564	587	61,268	22,669
Juneau	$28	810,341	86	15,514	616,630	69	12,627	2,814
Kenosha	$18	10,501,744	1,729	187,618	7,966,075	1,409	141,741	56,057
Kewaunee	$21	1,712,719	189	16,213	1,322,832	154	13,825	7,163
La Crosse	$26	9,805,571	1,572	185,417	7,604,033	1,326	151,580	37,142
Lafayette	$19	750,499	114	8,851	567,924	93	7,194	3,563
Langlade	$19	1,821,947	193	15,249	1,369,523	149	13,321	8,452
Lincoln	$19	2,153,285	293	51,105	1,654,521	241	45,139	11,553
Manitowoc	$40	5,427,959	810	82,676	4,199,480	655	75,428	13,227
Marathon	$29	12,952,721	1,759	247,303	9,982,167	1,453	214,674	44,418
Marinette	$18	3,395,844	421	34,279	2,595,496	342	28,060	16,834
Marquette	$25	725,312	65	7,166	543,437	52	5,772	2,534
Menominee	$27	273,629	37	12,960	207,640	32	11,441	1,289
Milwaukee	$22	80,249,616	11,554	2,298,530	60,596,516	9,329	1,878,595	377,729

County	Annual Dollars per Capita	Annual Verified kWh	Annual Verified kW	Annual Verified Therms	Annual Net kWh	Annual Net kW	Annual Net Therms	Eligible Participants
Monroe	$12	1,459,597	177	18,125	1,103,097	145	15,003	11,207
Oconto	$30	2,670,446	268	28,813	2,026,618	213	24,883	8,063
Oneida	$21	3,364,328	418	43,402	2,630,402	345	36,921	15,211
Outagamie	$41	20,396,321	2,790	284,389	15,692,474	2,295	250,519	46,720
Ozaukee	$33	8,620,774	1,618	143,412	6,560,624	1,371	120,225	25,245
Pepin	$28	596,819	48	6,686	450,503	37	5,327	1,916
Pierce	$25	921,414	160	20,418	725,259	140	19,669	3,977
Polk	$18	1,484,048	138	29,946	1,143,731	107	24,830	8,142
Portage	$48	10,468,609	1,307	215,479	8,494,005	1,095	190,196	23,159
Price	$27	895,719	72	5,268	667,447	55	4,474	2,801
Racine	$20	16,124,701	2,572	159,221	12,292,937	2,150	128,132	70,819
Richland	$38	954,581	101	9,407	675,823	80	7,954	2,099
Rock	$25	14,644,931	1,387	286,335	10,481,947	1,055	207,939	54,206
Rusk	$37	1,527,737	104	12,791	1,074,050	76	10,370	3,369
Sauk	$21	3,663,610	398	50,394	2,797,322	323	43,771	16,064
Sawyer	$14	761,881	85	8,404	560,355	66	7,145	4,683
Shawano	$27	2,823,771	299	36,318	2,114,186	235	29,685	9,375
Sheboygan	$23	7,814,886	1,335	178,591	6,079,664	1,089	152,689	34,842
St. Croix	$18	2,630,274	392	34,909	2,033,728	332	32,026	13,910
Taylor	$131	1,161,965	79	5,044	872,374	60	4,311	733
Trempealeau	$25	792,548	70	10,006	577,132	53	8,915	2,785
Vernon	$30	1,447,009	128	14,940	1,092,897	102	12,860	4,360
Vilas	$22	2,112,113	230	25,675	1,619,507	188	21,303	8,793
Walworth	$19	6,574,797	893	87,899	5,046,204	758	69,589	31,728
Washburn	$17	792,677	57	4,211	556,524	42	3,209	3,684
Washington	$36	13,873,982	1,822	301,174	10,697,675	1,499	249,501	38,827
Waukesha	$28	38,730,249	6,325	524,311	29,780,676	5,320	443,849	128,672
Waupaca	$31	4,845,365	719	58,292	3,721,538	595	50,194	14,439
Waushara	$24	1,635,975	238	18,978	1,245,381	194	15,826	6,153
Winnebago	$32	17,615,689	2,473	393,715	13,587,159	2,003	330,359	55,533
Wood	$36	3,627,320	459	56,964	2,728,762	376	49,310	9,378
Not mapped*		19,450,066	1,119	71,554	15,370,037	844	51,063	

* *Unknown County:* The impacts for these participants are not mapped either because their address information is not complete or because their address falls out of the boundaries of participating utility territory according to the GIS mapping application.

Figure A-12.
Residential Programs
Implemented Energy, Electric or Gas Bill Savings by Senate District
Net Cumulative Savings (July 1, 2001–June 30, 2008)

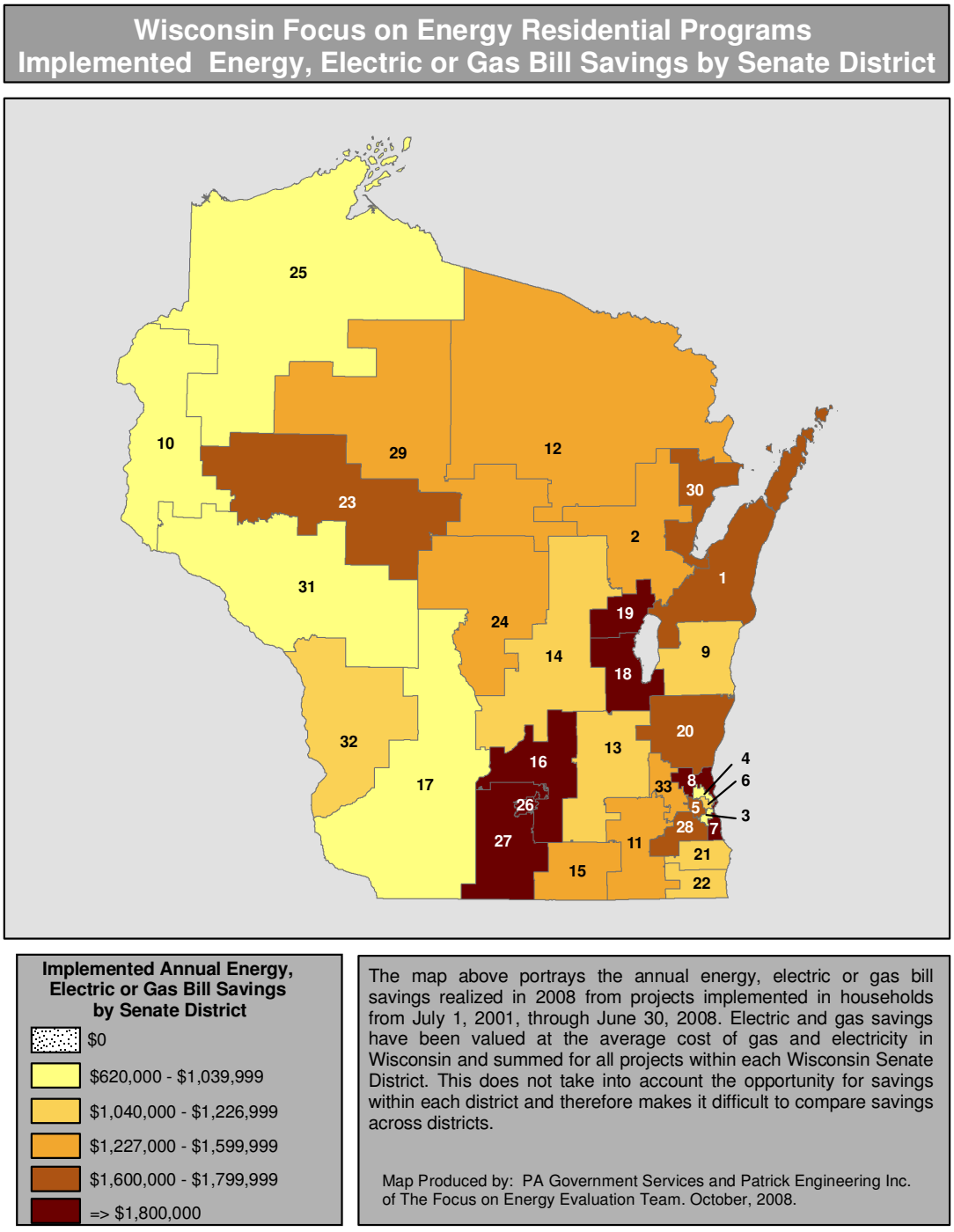


Table A-12. Residential Programs Energy Impacts
(By Senate District)
Net Cumulative Savings (July 1, 2001–June 30, 2008)

Senate District	Annual Dollars Saved	Annual Verified kWh	Annual Verified kW	Annual Verified Therms	Annual Net kWh	Annual Net kW	Annual Net Therms
1	$1,704,310	17,485,816	2,271	286,803	13,511,655	1,844	254,568
2	$1,596,575	16,101,594	2,008	310,668	12,408,337	1,601	260,902
3	$1,039,804	10,875,777	1,399	218,545	8,134,029	1,109	165,164
4	$871,109	8,088,894	1,171	266,812	6,034,966	889	208,509
5	$1,677,280	17,708,808	3,040	290,305	13,380,056	2,488	243,089
6	$1,186,329	8,813,477	1,018	521,302	6,682,250	814	422,235
7	$2,287,082	19,977,193	2,719	733,067	15,056,826	2,186	618,339
8	$1,919,788	19,438,711	3,253	383,848	14,924,283	2,730	313,361
9	$1,048,343	10,114,753	1,731	222,769	7,895,877	1,417	193,963
10	$621,863	6,431,536	823	103,049	4,955,541	678	90,595
11	$1,227,345	13,126,302	2,040	176,895	10,164,438	1,735	144,257
12	$1,258,942	13,643,886	1,559	166,123	10,485,901	1,265	142,590
13	$1,206,173	12,719,489	1,833	202,129	9,669,321	1,489	170,546
14	$1,226,885	13,241,244	1,692	178,935	10,080,300	1,382	151,432
15	$1,427,632	15,886,581	1,502	278,845	11,440,940	1,151	202,194
16	$1,824,135	15,244,898	1,882	596,565	11,564,908	1,555	533,145
17	$734,399	8,024,980	893	108,049	6,030,228	722	90,980
18	$1,915,605	18,087,743	2,467	470,825	14,015,193	2,018	391,562
19	$2,240,757	23,424,795	3,330	354,617	18,040,517	2,736	309,863
20	$1,669,333	16,640,901	2,289	345,281	12,751,549	1,889	292,792
21	$1,210,784	13,764,033	2,160	125,271	10,477,864	1,794	101,763
22	$1,110,572	11,661,714	1,938	212,132	8,869,084	1,591	160,075
23	$1,700,985	18,743,343	1,610	198,823	14,414,996	1,294	170,406
24	$1,514,639	14,859,590	1,835	279,055	11,797,637	1,526	245,165
25	$908,384	10,036,610	816	149,614	7,368,266	630	120,685
26	$2,962,810	23,961,585	3,003	1,062,715	18,518,845	2,485	889,814
27	$2,152,477	19,173,393	2,299	612,756	14,797,847	1,911	525,507
28	$1,784,884	19,708,015	3,026	228,462	14,974,103	2,516	192,481
29	$1,480,228	15,378,029	1,905	256,442	11,725,632	1,557	221,954
30	$1,739,856	16,560,161	2,138	440,239	12,690,532	1,658	359,132
31	$794,289	8,687,040	918	132,203	6,404,550	723	108,969
32	$1,191,972	12,308,285	1,807	210,662	9,503,738	1,515	173,194
33	$1,589,405	16,647,876	2,784	253,025	12,859,302	2,354	214,133
Not mapped*	$1,673,138	19,582,155	1,130	73,407	15,456,329	853	52,668

* *Unknown district:* The impacts for these participants are not mapped either because their address information is not complete or because their address falls out of state boundaries according to the GIS mapping application.

Figure A-13.
Residential Programs
Implemented Energy, Electric or Gas Bill Savings by Assembly District
Net Cumulative Savings (July 1, 2001–June 30, 2008)

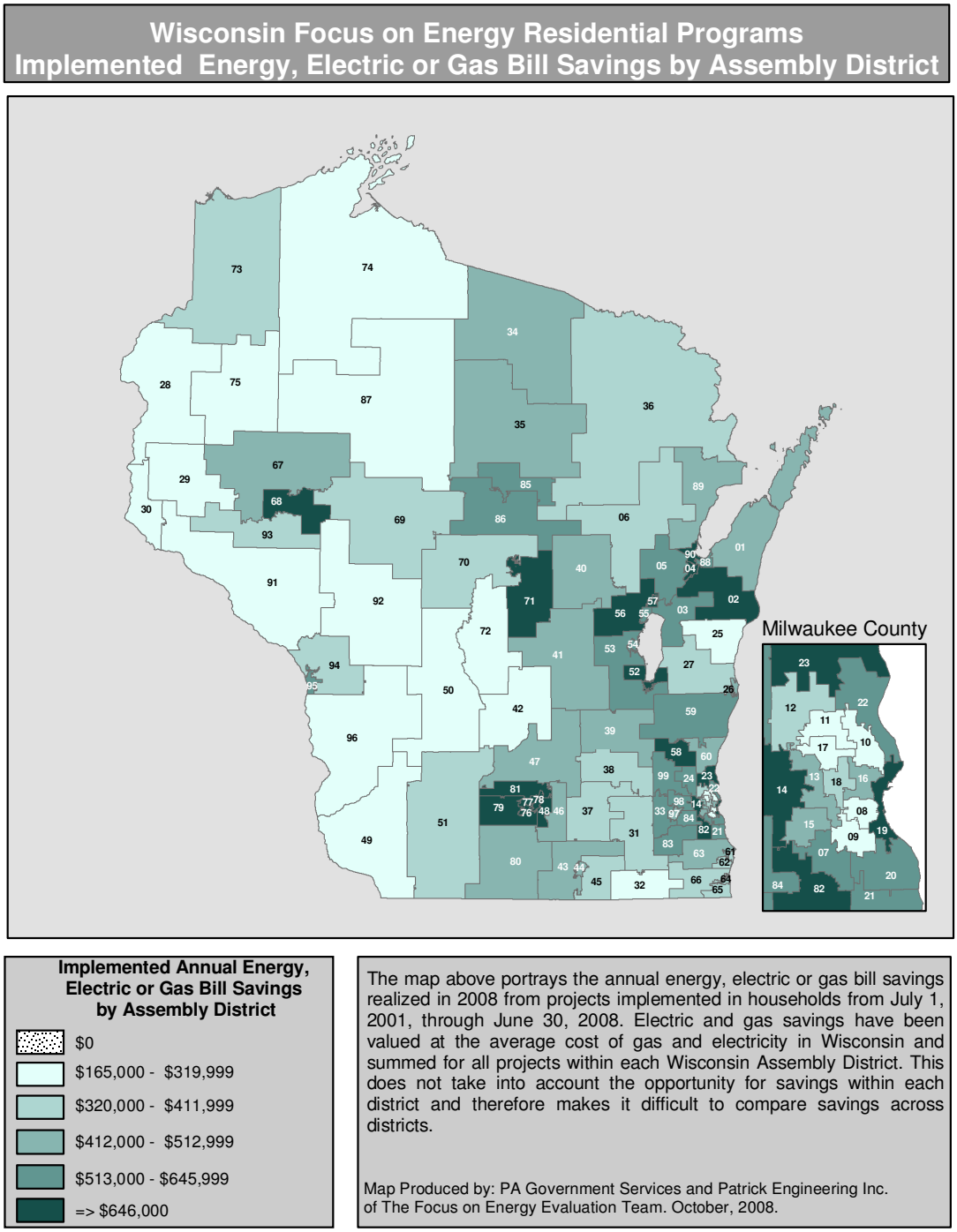


Table A-13. Residential Programs Energy Impacts
(By Assembly District)
Net Cumulative Savings (July 1, 2001–June 30, 2008)

Assembly District	Annual Dollars Saved	Annual Verified kWh	Annual Verified kW	Annual Verified Therms	Annual Net kWh	Annual Net kW	Annual Net Therms
1	$429,578	4,734,976	524	48,844	3,635,999	429	43,437
2	$674,524	6,625,930	808	130,802	5,171,176	654	116,627
3	$600,225	6,125,148	939	107,157	4,704,643	761	94,505
4	$679,792	7,014,009	945	122,536	5,403,003	751	100,310
5	$581,912	5,337,454	629	144,914	4,184,535	504	125,509
6	$334,785	3,749,174	434	43,218	2,819,969	346	35,084
7	$561,978	5,768,733	852	127,999	4,359,545	683	92,560
8	$184,582	1,917,110	139	38,899	1,433,288	105	30,276
9	$293,239	3,189,855	408	51,647	2,341,146	320	42,328
10	$260,179	2,564,154	325	65,255	1,885,982	244	54,763
11	$225,234	1,905,861	277	84,369	1,413,195	211	67,159
12	$385,644	3,618,574	569	117,169	2,735,458	434	86,571
13	$475,824	4,983,370	842	81,791	3,774,506	683	70,874
14	$705,888	7,555,373	1,261	114,291	5,737,953	1,048	92,683
15	$495,543	5,169,673	936	94,223	3,867,349	757	79,533
16	$496,447	2,816,084	310	296,599	2,134,112	242	236,289
17	$286,859	2,930,677	344	62,468	2,166,223	273	52,564
18	$403,036	3,066,869	364	162,235	2,382,031	300	133,382
19	$1,160,844	8,120,328	1,084	523,157	6,189,839	857	444,559
20	$575,996	6,133,684	830	115,939	4,514,007	656	90,755
21	$550,242	5,723,181	805	93,971	4,352,980	673	83,025
22	$617,894	5,948,484	1,117	153,508	4,492,963	940	128,799
23	$690,545	7,007,763	1,304	130,760	5,443,544	1,112	105,939
24	$611,414	6,483,006	831	99,600	4,988,239	678	78,638
25	$285,663	2,829,938	469	52,017	2,204,985	378	48,044
26	$414,684	3,685,254	764	113,837	2,906,593	628	96,227
27	$348,019	3,599,775	499	56,914	2,784,516	411	49,693
28	$169,232	1,723,224	162	32,476	1,321,402	127	27,101
29	$275,351	2,844,198	342	49,268	2,153,930	273	43,741
30	$177,279	1,864,114	319	21,305	1,480,209	278	19,753
31	$387,417	4,160,939	634	53,826	3,202,577	539	46,064
32	$318,781	3,384,581	513	52,984	2,606,032	436	40,528
33	$521,140	5,580,663	893	70,085	4,355,762	761	57,665
34	$478,844	5,115,784	598	65,705	3,975,541	490	55,389
35	$417,700	4,336,012	531	71,416	3,308,331	429	62,675
36	$362,463	4,192,714	430	29,001	3,202,653	345	24,526
37	$362,569	3,898,160	467	52,659	2,965,093	384	45,997
38	$365,695	3,572,612	534	83,163	2,739,919	428	68,957
39	$477,962	5,249,515	833	66,307	3,964,813	677	55,592
40	$470,061	5,117,379	762	60,146	3,932,647	630	51,671
41	$442,444	4,901,662	612	59,804	3,684,693	494	50,156
42	$314,383	3,222,244	318	58,985	2,462,998	258	49,605

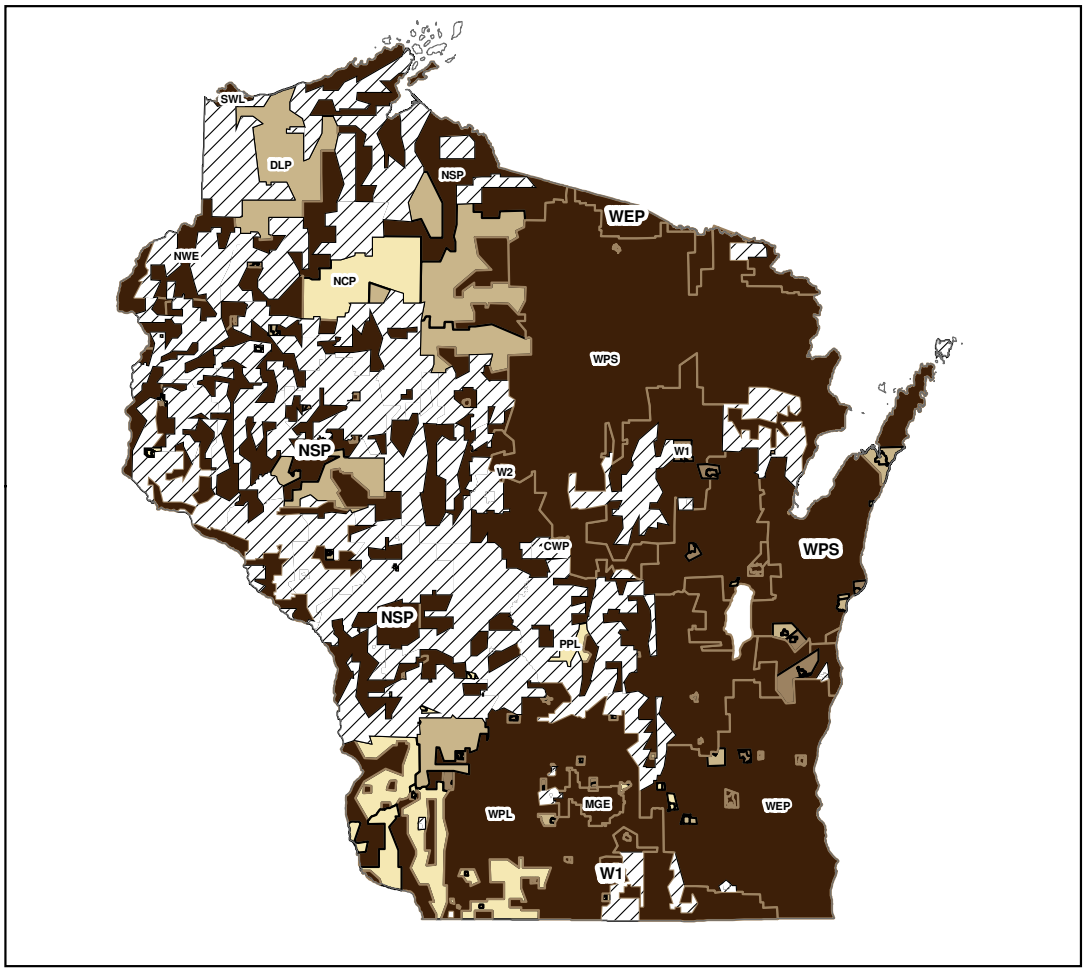
Assembly District	Annual Dollars Saved	Annual Verified kWh	Annual Verified kW	Annual Verified Therms	Annual Net kWh	Annual Net kW	Annual Net Therms
43	$510,801	6,091,877	541	59,528	4,394,520	419	45,257
44	$511,076	5,282,555	608	138,549	3,824,547	459	96,787
45	$405,755	4,512,149	353	80,767	3,221,874	274	60,150
46	$432,990	3,607,875	369	145,432	2,705,350	303	130,131
47	$483,171	4,973,022	572	92,453	3,716,919	464	82,395
48	$907,912	6,662,859	941	358,680	5,142,049	788	320,618
49	$193,754	2,112,656	232	30,983	1,564,411	188	26,390
50	$214,907	2,337,371	270	29,410	1,788,213	221	24,501
51	$325,738	3,574,952	391	47,656	2,677,604	312	40,089
52	$744,095	6,935,261	1,027	182,749	5,447,694	853	151,769
53	$579,293	5,796,694	783	120,409	4,455,102	635	98,900
54	$592,218	5,355,788	657	167,668	4,112,397	529	140,893
55	$541,005	5,619,093	821	87,444	4,344,403	661	75,827
56	$958,483	9,915,443	1,308	165,508	7,568,782	1,082	145,866
57	$741,280	7,890,458	1,202	101,665	6,127,443	993	88,169
58	$661,265	6,304,792	842	156,667	4,891,007	696	130,399
59	$530,324	5,190,852	701	115,784	3,978,167	569	99,569
60	$477,708	5,144,898	746	72,829	3,882,028	624	62,824
61	$393,581	4,809,781	599	11,668	3,648,020	487	11,297
62	$380,364	4,072,764	780	62,210	3,104,614	645	48,794
63	$436,839	4,881,488	781	51,394	3,725,230	662	41,672
64	$377,340	3,708,005	641	104,432	2,806,851	502	72,981
65	$369,472	3,995,991	728	53,139	3,058,022	614	43,589
66	$363,761	3,957,718	569	54,562	3,004,211	474	43,504
67	$412,567	4,940,353	394	41,900	3,550,580	300	36,447
68	$966,576	10,424,452	918	94,791	8,363,455	763	81,335
69	$321,842	3,378,537	298	62,132	2,500,960	231	52,624
70	$343,512	3,677,975	452	55,908	2,756,479	363	48,327
71	$952,529	8,924,674	1,084	185,575	7,306,278	915	164,352
72	$218,599	2,256,940	299	37,572	1,734,880	249	32,486
73	$385,561	4,383,753	310	68,663	3,116,805	238	52,181
74	$311,339	3,185,999	288	59,440	2,429,161	224	50,023
75	$211,484	2,466,858	218	21,511	1,822,299	169	18,480
76	$945,239	7,548,789	1,098	357,816	5,686,324	902	303,844
77	$958,268	8,468,558	1,049	269,007	6,642,139	879	229,071
78	$1,059,293	7,944,380	855	435,893	6,190,286	704	356,899
79	$974,132	8,427,941	992	284,534	6,622,812	835	244,498
80	$440,705	4,627,034	589	77,995	3,477,764	490	67,277
81	$737,660	6,118,620	717	250,226	4,697,452	587	213,732
82	$648,809	7,127,334	1,035	86,804	5,422,927	862	71,784
83	$518,985	5,716,929	845	68,819	4,336,772	702	57,515
84	$617,095	6,863,831	1,146	72,839	5,214,454	952	63,182
85	$617,069	5,622,768	757	158,732	4,376,005	629	138,613
86	$550,730	5,951,585	873	73,519	4,576,739	724	63,310
87	$312,429	3,803,676	274	24,191	2,772,889	204	20,031
88	$608,464	5,507,019	708	167,018	4,264,044	549	141,263

Assembly District	Annual Dollars Saved	Annual Verified kWh	Annual Verified kW	Annual Verified Therms	Annual Net kWh	Annual Net kW	Annual Net Therms
89	$466,632	4,869,215	573	80,108	3,705,018	457	69,197
90	$664,749	6,183,785	857	193,113	4,721,364	652	148,672
91	$188,572	1,978,531	200	34,724	1,465,720	159	30,801
92	$195,022	2,337,747	221	12,146	1,750,821	176	10,709
93	$410,694	4,370,762	498	85,333	3,188,009	388	67,459
94	$366,740	4,076,647	631	40,683	3,130,280	533	34,730
95	$605,732	5,771,627	946	145,120	4,505,370	796	117,189
96	$219,500	2,460,011	231	24,859	1,868,087	185	21,275
97	$434,836	4,228,501	847	98,872	3,267,889	719	81,100
98	$640,024	6,831,140	1,184	83,043	5,330,531	1,011	72,519
99	$514,566	5,588,497	753	71,110	4,261,078	625	60,514
Not mapped*	$1,673,138	19,582,155	1,130	73,407	15,456,329	853	52,668

* *Unknown District*: The impacts for these participants are not mapped either because their address information is not complete or because their address falls out of state boundaries according to the GIS mapping application.

Figure A-14.
Residential Programs
Per Capita Energy, Electric Bill Savings by Electric Utility Territory
Net Cumulative Savings (July 1, 2001–June 30, 2008)

Wisconsin Focus on Energy Residential Programs
Per Capita* Energy, Electric Bill Savings by Electric Utility Territory



Per Capita Annual Energy, Electric Bill Savings by Utility Territory

- $0
- $0.01 - $4.65
- $4.66 - $7.00
- $7.01 - $10.75
- > $10.75
- Non Participating Utility Territories

The map above portrays the annual energy, electric or gas bill savings realized in 2008 from projects implemented in households from July 1, 2001, through June 30, 2008. Electric savings has been valued at the average cost of electricity in Wisconsin and summed for all projects within each utility territory and divided by the number of residential customers in that utility territory.

* The unit of population is residential customers as reported by the utilities in 2005.

Map Produced by: PA Government Services and Patrick Engineering Inc. of The Focus on Energy Evaluation Team. October, 2008.

Table A-14. Residential Programs Electric Impacts
(By Participating Electric Utility)
Net Cumulative Savings (July 1, 2001–June 30, 2008)

Utility	Map Code	Annual Dollars per Capita	Annual Dollars Saved	Annual Verified kWh	Annual Verified kW	Annual Net kWh	Annual Net kW	Number of Customers
Algoma Utility Commission		$1	$1,824	22,685	1	17,490	1	1,637
Alliant Energy	WPL	$14	$5,554,279	70,643,573	8,980	53,252,915	7,300	384,563
Arcadia Electric & Water Utility		$2	$2,084	27,718	2	19,977	1	1,080
Black River Falls Municipal Electric & Water		$5	$11,651	150,448	10	111,703	8	2,156
Bloomer City Of Electric Utility		$10	$16,096	217,562	17	154,322	13	1,570
Boscobel Municipal Utilities		$4	$5,125	62,279	4	49,141	3	1,429
Brodhead Water And Light Commission		$6	$8,452	112,589	9	81,035	7	1,462
Cashton Municipal Electric And Water Utility		$11	$5,083	64,035	13	48,734	11	472
Cedarburg Light And Water Commission		$13	$64,743	822,352	108	620,739	91	5,082
Centuria Municipal Electric Utility		$5	$1,803	19,920	2	17,290	2	387
City of Argyle		$15	$5,748	68,612	10	55,109	8	396
City of Kiel		$9	$17,705	214,805	24	169,755	20	2,043
City of Lodi		$11	$14,409	183,016	13	138,153	10	1,367
City of Muscoda		$10	$8,995	124,749	7	86,239	5	937
City of New Richmond		$2	$7,569	93,304	10	72,572	8	3,368
City of Westby		$3	$3,200	43,149	3	30,682	2	945
Columbus Water And Light Dept		$5	$10,845	138,971	13	103,979	10	2,178
Consolidated Water Power Company	CWP	$15	$14,400	178,142	25	138,061	21	987
Cornell Municipal Water And Electric Utility		$31	$21,526	262,651	9	206,384	7	701
Cuba City Electric & Water Utility		$2	$1,997	26,553	1	19,147	1	918
Cumberland Municipal Utility		$14	$15,387	191,686	22	147,531	17	1,113
Dahlberg Light And Power Company	DLP	$7	$67,491	903,731	56	647,084	41	9,644
Eagle River Light And Water Commission		$18	$14,802	189,088	14	141,919	10	817
Eau Claire Electric Cooperative	C-8	$5	$47,263	654,644	44	453,142	34	9,586
Elroy Municipal Electric And Water Utility		$4	$2,882	36,365	3	27,630	3	759
Evansville City of Water & Light		$13	$45,781	584,551	46	438,931	37	3,528
Florence Utility Commission		$3	$2,850	35,372	4	27,326	3	914
Hartford City Of Utilities		$10	$50,689	642,178	57	485,994	46	5,279
Hustisford Utilities		$5	$7,089	87,066	11	67,972	9	1,306
Jefferson Utilities		$7	$22,364	278,870	27	214,417	21	3,383
Juneau Utility Commission		$4	$4,088	50,879	5	39,190	4	924
Kaukauna Utilities		$16	$200,409	2,390,689	306	1,921,463	248	12,170
La Farge Municipal Electric Utility		$3	$1,214	15,609	1	11,639	1	449
Lake Mills Light And Water Dept		$5	$14,689	182,148	24	140,830	20	3,253
Madison Gas And Electric Company	MGE	$26	$3,083,483	37,991,200	4,710	29,563,599	3,920	116,977
Manitowoc Public Utilities		$5	$83,570	1,004,084	117	801,243	92	15,594
Mazomanie Electric Utility		$9	$6,730	84,308	8	64,524	7	736
Medford Electric Utility		$13	$33,729	418,988	27	323,387	21	2,560
Menasha Electric & Water Utilities		$6	$47,556	571,580	80	455,958	64	7,867
Mount Horeb Electric Utility		$6	$18,463	236,378	23	177,019	19	2,936
New Glarus Light And Water Works		$12	$11,338	143,967	15	108,703	12	978

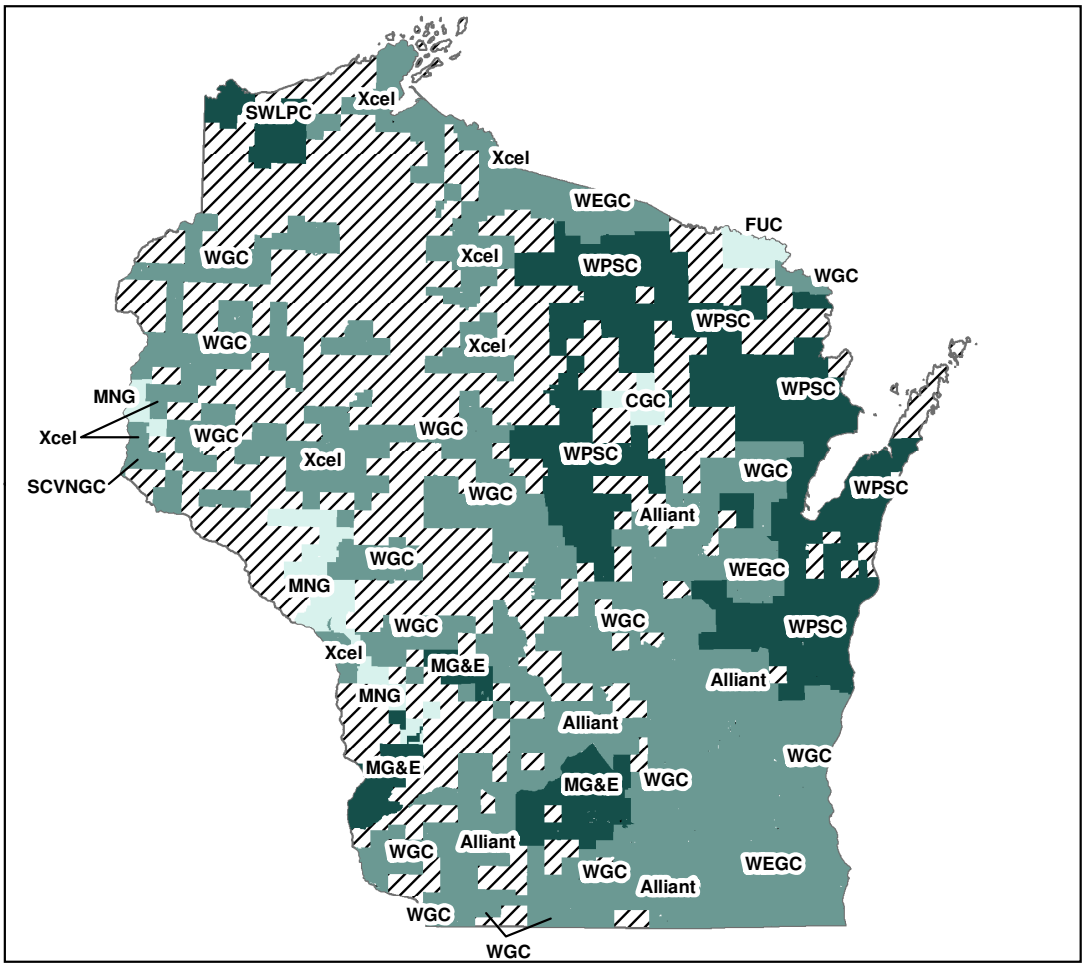
Utility	Map Code	Annual Dollars per Capita	Annual Dollars Saved	Annual Verified kWh	Annual Verified kW	Annual Net kWh	Annual Net kW	Number of Customers
New Holstein Public Utility		$6	$11,342	141,091	16	108,746	12	2,034
New London Electric & Water Utility		$10	$33,231	410,081	57	318,610	44	3,265
North Central Power Company Inc	NCP	$5	$19,390	257,288	20	185,909	15	4,185
Northwestern Wisconsin Electric Co	NWE	$482	$34,686	441,951	36	332,559	28	72
Oconomowoc City Of Utilities		$14	$97,975	1,208,568	133	939,361	110	7,195
Oconto Falls Water And Light Commission		$7	$9,601	121,075	10	92,053	8	1,311
Pierce-Pepin Electric Cooperative	C-14	$7	$48,143	613,780	68	461,585	55	6,760
Pioneer Power & Light Company	PPL	$4	$7,719	99,705	8	74,005	6	1,937
Plymouth Utilities		$7	$48,116	607,683	49	461,319	39	6,706
Polk-Burnett Electric Cooperative	C-15	$3	$55,175	717,006	51	529,005	38	17,937
Price Electric Cooperative Inc	C-16	$5	$41,254	528,382	41	395,535	31	8,522
Princeton Municipal Water & Electric Utility		$10	$6,556	84,220	8	62,858	6	667
Reedsburg Utility Commission		$9	$36,218	422,149	29	347,246	24	4,032
Rice Lake Municipal Water & Electric Utility		$5	$22,539	280,955	19	216,095	15	4,374
Richland Center Electric Utility		$8	$19,297	262,780	20	185,016	16	2,434
Richland Electric Cooperative	C-17	$6	$21,156	283,207	26	202,836	20	3,462
River Falls Municipal Utility		$3	$16,633	200,189	14	159,474	11	4,851
Riverland Energy Cooperative	C-18	$2	$23,774	316,839	28	227,943	22	14,631
Rock County Electric Cooperative	C-19	$5	$28,288	382,619	38	271,215	31	5,815
Scenic River Electric Cooperative	C-20	$3	$40,331	522,198	46	386,686	37	12,139
Shawano Municipal Utilities		$10	$39,103	491,731	51	374,907	41	4,082
Sheboygan Falls Utilities		$7	$25,845	326,752	53	247,790	40	3,642
Shullsburg Electric Utility		$5	$3,358	44,207	9	32,191	7	679
Slinger Utilities		$11	$17,439	218,645	23	167,200	19	1,532
Spooner Municipal Utilities		$8	$9,537	134,431	9	91,439	7	1,254
Stoughton Electric Utility		$11	$84,148	1,134,430	96	806,786	77	7,404
Stratford Municipal Water & Electric Utility		$23	$15,193	192,845	13	145,668	10	673
Sturgeon Bay Utilities		$5	$37,964	479,565	64	363,989	50	6,932
Sun Prairie Water & Light Commission		$4	$46,160	567,949	48	442,568	40	10,535
Superior Water Light And Power Company	SWL	$17	$214,638	2,878,584	208	2,057,889	162	12,462
Two Rivers Water & Light Utility		$7	$39,927	480,646	53	382,807	42	5,644
Village of Belmont		$5	$2,662	34,017	2	25,524	2	535
Village of Benton		$3	$1,089	14,157	3	10,437	2	432
Village of Cadott		$23	$14,855	199,745	16	142,425	12	660
Village of Gresham		$9	$8,356	108,886	7	80,116	6	924
Village of Pardeeville		$11	$12,752	158,422	14	122,266	11	1,199
Village of Prairie Du Sac		$10	$16,513	212,221	20	158,324	16	1,626
Village of Viola		$2	$702	8,471	0	6,728	0	336
Village of Waunakee		$7	$30,345	380,120	36	290,943	30	4,211
Waterloo Water And Light Commission		$5	$6,780	87,089	7	65,008	6	1,490
Waupun Public Utilities		$8	$30,031	378,583	21	287,931	16	3,666
We Energies	WEP	$17	$16,457,996	206,907,107	30,812	157,794,786	25,318	953,667
Westfield Electric Co		$0	$0	0	0	0	0	572
Whitehall Municipal Electric Utility		$5	$3,661	49,282	3	35,101	2	738
Wisconsin Dells Municipal Electric Utility		$6	$7,711	96,905	6	73,929	5	1,271

Utility	Map Code	Annual Dollars per Capita	Annual Dollars Saved	Annual Verified kWh	Annual Verified kW	Annual Net kWh	Annual Net kW	Number of Customers
Wisconsin Public Service Corporation	WPS	$17	$6,174,314	76,115,300	10,044	59,197,641	8,139	367,836
Wonewoc Electric & Water Utility		$6	$2,584	33,121	3	24,776	2	438
Xcel Energy	NSP	$16	$3,245,966	40,554,144	4,653	31,121,440	3,815	201,970
Not mapped*			$3,642,599	45,789,590	4,438	34,924,247	3,503	

* *Unknown Utility:* The impacts for these participants are not mapped either because their address information is not complete or because their address falls out of the boundaries of participating utility territory according to the GIS mapping application.

Figure A-15.
Residential Programs
Per Capita Energy, Gas Bill Savings by Gas Utility
Net Cumulative Savings (July 1, 2001–June 30, 2008)

Wisconsin Focus on Energy Residential Programs
Per Capita* Energy, Gas Bill Savings by Gas Utility Territory



Per Capita Annual Energy, Gas Bill Savings by Utility Territory

- $0
- $0.01 - $2.50
- $2.51 - $5.50
- > $5.50
- Non Participating Utility Territories

The map above portrays the annual energy, electric or gas bill savings realized in 2008 from projects implemented in households from July 1, 2001, through June 30, 2008. Gas savings has been valued at the average cost of gas in Wisconsin and summed for all projects within each utility territory and divided by the number of residential customers in that utility territory.

* The unit of population is residential customers as reported by the utilities in 2005.

Map Produced by: PA Government Services and Patrick Engineering Inc. of The Focus on Energy Evaluation Team. October 2008

Table A-15. Residential Programs Gas Impacts
(By Participating Gas Utility)
Net Cumulative Savings (July 1, 2001–June 30, 2008)

Utility	Map Code	Annual Dollars per Capita	Annual Dollars Saved	Annual Verified Therms	Annual Net Therms	Number of Customers
Alliant/Wisconsin Power & Light	Alliant	$5	$826,074	882,834	712,747	153,893
City Gas Company	CGC	$2	$9,330	9,499	8,050	4,033
Florence Utility Commission	FUC	$0	$220	231	190	1,106
Madison Gas and Electric	MG&E	$15	$1,861,969	1,882,087	1,606,531	123,706
Midwest Natural Gas Inc.	MNG	$2	$24,433	23,565	21,081	12,096
St Croix Valley Natural Gas Company	SCVNGC	$3	$17,432	16,336	15,041	6,420
Superior Water Light And Power Company	SWLPC	$6	$61,874	68,115	53,385	10,835
Wisconsin Electric Gas Operations	WEGC	$3	$1,403,509	1,488,225	1,210,965	405,283
Wisconsin Gas Company	WGC	$5	$2,918,100	3,029,232	2,517,774	531,963
Wisconsin Public Service Corporation	WPSC	$6	$1,700,881	1,722,959	1,467,542	278,556
Xcel (Northern States Power Company)	Xcel	$5	$400,266	414,975	345,354	83,881
Not mapped*			$900,972	912,183	777,370	

* *Unknown Utility:* The impacts for these participants are not mapped either because their address information is not complete or because their address falls out of the boundaries of participating utility territory according to the GIS mapping application.

A.4 RENEWABLE ENERGY PROGRAM

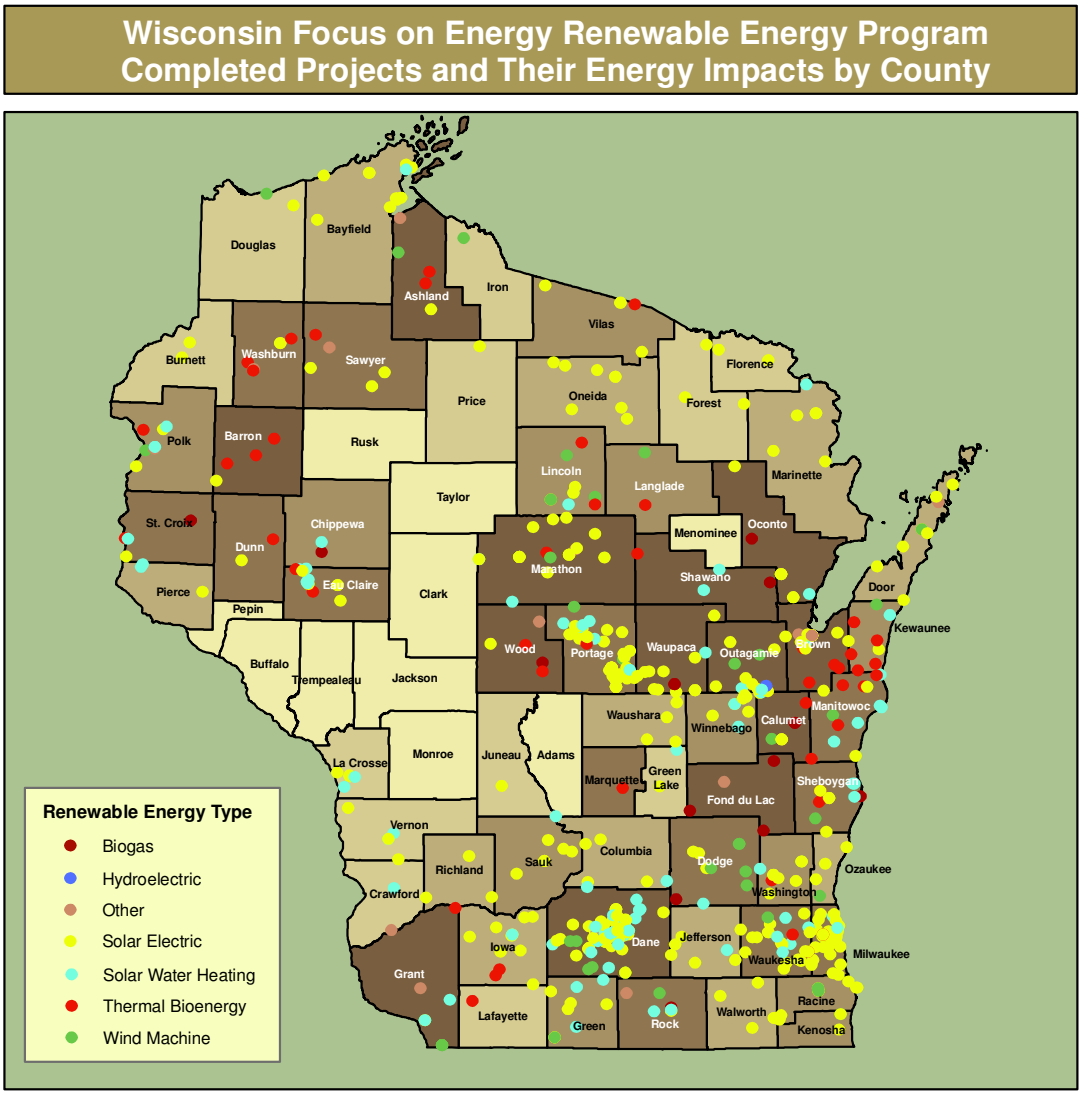
In this section, we summarize the verified energy impacts across the Renewable Energy Programs through June 30, 2008.

Note: A change in the type of energy impacts data used for the Renewable Energy Programs maps. As explained in the Introduction to this Appendix (above), the data reported in all of the maps in this report are now *persistent net* energy impacts—a new type of reported energy impacts. As in the past, these are impact estimates based on evaluation work done to establish verified net for specific programs and/or program areas. However, as discussed in Section 1.1, *persistent net* is defined as:

> Energy savings, expressed as *verified net*, that are lifecycle impacts that also include an exponential decay rate, such that half the savings remains after the measure life.

In order to provide some continuity in this transition in the basis for the mapped energy impacts, the tables that accompany the maps include a column for verified gross impacts—as in past reports impacts—though these are *lifecycle* verified gross impacts, and will therefore show some differences from past reports. Additional discussion of lifecycle and persistent savings is provided above in Section 2.0 and Section 2.8.

Figure A-16.
Renewable Energy Program
Completed Projects and Their Energy Impacts by County
Verified Gross Savings (July 1, 2001–June 30, 2008)



Annual Value of Energy Impacts

- $0
- $40 - $1320
- $1321 - $5,000
- $5,001 - $18,000
- $18,001 - $153,000
- > $153,000

The map above portrays the annual retail value of the energy impacts realized in 2008 from renewable energy projects installed from July 1, 2001, through June 30, 2008. Electric and gas savings have been valued at the average cost of gas and electricity in Wisconsin and summed for all projects within each county. Location of Individual projects is also shown on the map.

Map Produced by: PA Government Services and Patrick Engineering Inc. of The Focus on Energy Evaluation Team. October, 2008.

Table A-16. Renewable Programs Energy Impacts
(By County)
Net Cumulative Savings (July 1, 2001–June 30, 2008)

County	Annual Dollars	Verified kWh	Verified kW	Verified Therms
Ashland	$250,716.48	17,680	14	247,007
Barron	$254,239.82	450	0	251,935
Bayfield	$2,449.87	29,130	21	0
Brown	$428,954.27	86,429	77	417,924
Burnett	$426.22	5,068	4	0
Calumet	$705,423.77	8,157,566	1,299	19,200
Chippewa	$17,558.26	206,396	33	199
Columbia	$2,429.15	27,655	19	102
Crawford	$415.07	4,935	1	0
Dane	$1,315,024.10	15,419,445	2,060	18,086
Dodge	$152,817.64	1,817,094	579	0
Door	$3,518.13	30,500	31	945
Douglas	$390.50	4,643	6	0
Dunn	$50,426.27	2,320	2	49,783
Eau Claire	$30,051.29	25,862	15	27,628
Florence	$122.37	1,455	1	0
Fond du Lac	$623,873.08	7,331,248	991	7,250
Forest	$337.53	4,013	3	0
Grant	$617,530.92	279,026	215	588,766
Green	$6,613.28	26,107	17	4,378
Green Lake	$688.89	6,534	6	138
Iowa	$4,927.42	31,779	24	2,235
Iron	$1,319.55	15,690	12	0
Jefferson	$2,971.62	35,334	31	0
Juneau	$41.21	490	0	0
Kenosha	$8,078.04	96,053	68	0
Kewaunee	$7,932.68	13,898	9	6,704
La Crosse	$694.84	7,262	5	83
Lafayette	$387.81	0	0	384
Langlade	$15,548.15	72,747	64	9,346
Lincoln	$17,688.46	57,992	47	12,697
Manitowoc	$125,655.48	59,548	28	119,571
Marathon	$281,478.58	70,960	60	273,053
Marinette	$1,590.14	8,793	7	843
Marquette	$55,320.12	0	0	54,827
Milwaukee	$19,759.61	207,564	212	2,283
Oconto	$174,371.77	2,072,037	255	112
Oneida	$1,418.35	16,865	14	0
Outagamie	$590,663.23	6,986,899	1,329	3,038
Ozaukee	$2,474.39	29,422	24	0
Pierce	$1,348.46	4,852	5	932
Polk	$9,759.48	76,618	48	3,286
Portage	$21,527.32	215,526	141	3,371

County	Annual Dollars	Verified kWh	Verified kW	Verified Therms
Price	$214.83	2,554	1	0
Racine	$8,644.05	102,783	91	0
Richland	$2,140.96	25,457	23	0
Rock	$26,542.39	314,197	49	117
Sauk	$15,199.77	42,196	33	11,547
Sawyer	$18,078.13	9,044	10	17,163
Shawano	$463,107.93	4,130,717	489	114,682
Sheboygan	$75,832.97	33,793	31	72,340
St. Croix	$142,798.79	908	1	141,449
Vernon	$887.21	10,549	7	0
Vilas	$15,668.33	10,991	9	14,613
Walworth	$1,331.50	15,832	18	0
Washburn	$65,507.99	6,986	5	64,341
Washington	$9,307.64	24,724	20	7,164
Waukesha	$47,015.40	96,601	86	38,544
Waupaca	$153,726.60	1,727,884	282	8,337
Waushara	$1,418.65	16,869	17	0
Winnebago	$7,941.29	50,472	50	3,664
Wood	$1,154,617.46	29,925	19	1,141,824

APPENDIX B: RESIDENTIAL DEFAULT SAVINGS VALUES USED FOR THE FIRST TWELVE MONTHS OF THE 18-MONTH CONTRACT PERIOD

The following table lists default/deemed energy savings by measure (used for the first twelve months of the 18-month contract period) for the Residential Programs.

Table B-1. Residential Programs: Default/Deemed Energy Savings By Measure (as of June 30, 2008)

Program	Program Initiative	Measure	Qualifier	Deemed Verified kWh	Deemed Net kWh	Deemed Verified kW	Deemed Net kW	Deemed Verified Therms	Deemed Net Therms
ACES	New Construction	Central Split AC - 14 SEER	N/A	82	82	0.2	0.2	0	0
ACES	Whole Building	4ft 4 L System 30w	N/A	185	185	0.0212	0.0212	0	0
ACES	Whole Building	Boiler 90%+ Modulating	N/A	0	0	0	0	85	85
ACES	Whole Building	Boiler Clean & Tune	N/A	0	0	0	0	0.0011	0.0011
ACES	Whole Building	Central Split AC - 16 SEER+	N/A	216	216	0.52	0.52	0	0
ACES	Whole Building	CFL	DI	43.5	33.9	0.0042	0.0033	0	0
ACES	Whole Building	CFL	N/A	43.5	33.9	0.0042	0.0033	0	0
ACES	Whole Building	CFL Fixtures	N/A	394	394	0.045	0.045	0	0
ACES	Whole Building	CFL Reflector Lamps	N/A	43.5	43.5	0.0042	0.0042	0	0
ACES	Whole Building	Controls-Energy Management System	N/A	122694	122694	8.5	8.5	6629	6629
ACES	Whole Building	ES Clothes Washer - Common Area	N/A	384	384	0	0	22	22
ACES	Whole Building	ES Clothes Washer - In Unit	N/A	163	163	0	0	5.5	5.5
ACES	Whole Building	ES Dehumidifier	N/A	50	50	0.05	0.05	0	0
ACES	Whole Building	ES Dishwasher	N/A	90	90	0	0	5	5
ACES	Whole Building	ES Refrigerator	N/A	66	66	0.011	0.011	0	0
ACES	Whole Building	ES Room Thru Wall AC	N/A	33	33	0.11	0.11	0	0

Program	Program Initiative	Measure	Qualifier	Deemed Verified kWh	Deemed Net kWh	Deemed Verified kW	Deemed Net kW	Deemed Verified Therms	Deemed Net Therms
ACES	Whole Building	ES Room Window AC	N/A	33	33	0.11	0.11	0	0
ACES	Whole Building	Faucet Aerator - Bath - Electric	N/A	127.1	127.1	0	0	0	0
ACES	Whole Building	Faucet Aerator - Bath - Gas	N/A	0	0	0	0	6.3	6.3
ACES	Whole Building	Faucet Aerator - Kitchen - Electric	N/A	223.1	223.1	0	0	0	0
ACES	Whole Building	Faucet Aerator - Kitchen - Gas	N/A	0	0	0	0	11.1	11.1
ACES	Whole Building	Furnace 90%+ AFUE w/ECM	Retrofit Post 5-1-08	759	759	0.17	0.17	20	20
ACES	Whole Building	Furnace 90%+ AFUE w/ECM	Retrofit Pre 5-1-08	773	773	0.1	0.1	20	20
ACES	Whole Building	HPT8 1 lamp 4ft	N/A	56	56	0.0064	0.0064	0	0
ACES	Whole Building	HPT8 2 lamp 4ft	N/A	80	80	0.0091	0.0091	0	0
ACES	Whole Building	HPT8 3 lamp 4ft	N/A	145	145	0.0166	0.0166	0	0
ACES	Whole Building	HPT8 4 lamp 4ft	N/A	171	171	0.0195	0.0195	0	0
ACES	Whole Building	LED Exit Fixture	N/A	298	298	0.017	0.017	0	0
ACES	Whole Building	Occupancy Sensor Ceiling	N/A	525	525	0	0	0	0
ACES	Whole Building	Occupancy Sensor Socket	N/A	189	189	0	0	0	0
ACES	Whole Building	Occupancy Sensor Wall	N/A	189	189	0	0	0	0
ACES	Whole Building	Pre-Rinse Sprayer - Electric	N/A	957	957	0.218	0.218	0	0
ACES	Whole Building	Pre-Rinse Sprayer - Gas	N/A	0	0	0	0	42	42
ACES	Whole Building	Showerhead - Electric	N/A	521	521	0	0	0	0
ACES	Whole Building	Showerhead - Gas	N/A	0	0	0	0	25	25
ACES	Whole Building	Showerhead 1.75 gpm - Electric	N/A	544.8	544.8	0	0	0	0

Program	Program Initiative	Measure	Qualifier	Deemed Verified kWh	Deemed Net kWh	Deemed Verified kW	Deemed Net kW	Deemed Verified Therms	Deemed Net Therms
ACES	Whole Building	Showerhead 1.75 gpm - Gas	N/A	0	0	0	0	27.2	27.2
ACES	Whole Building	Steam Trap-All Other Traps-Replace or Repair	N/A	0	0	0	0	299	299
ACES	Whole Building	Water Heater-Electric Tank Type 93%+	N/A	268	268	0	0	0	0
EHCI	EHCI	>=90% modulating hot water	N/A	0	0	0	0	98	98
EHCI	EHCI	>=90% non-modulating hot water	N/A	0	0	0	0	98	98
EHCI	EHCI	90+ AFUE Boiler	N/A	0	0	0	0	98	98
EHCI	EHCI	90+ AFUE with ECM	New Construction Post 5-1-08	1116	1116	0.1	0.1	20	20
EHCI	EHCI	90+ AFUE with ECM	New Construction Pre 5-1-08	1126	1126	0.1	0.1	20	20
EHCI	EHCI	90+ AFUE with ECM	Retrofit Post 5-1-08	759	759	0.17	0.17	20	20
EHCI	EHCI	90+ AFUE with ECM	Retrofit Pre 5-1-08	773	773	0.1	0.1	20	20
EHCI	EHCI	HVAC - Flue Closure	N/A	0	0	0	0	60	60
EHCI	EHCI	SEER 14	Post 5-1-08	54	54	0.1	0.1	0	0
EHCI	EHCI	SEER 14	Pre 5-1-08	82	82	0.2	0.2	0	0
EHCI	EHCI	SEER 15	Post 5-1-08	101	101	0.17	0.17	0	0
EHCI	EHCI	SEER 15	Pre 5-1-08	154	154	0.37	0.37	0	0
EHCI	EHCI	SEER 16	Post 5-1-08	142	142	0.28	0.28	0	0
EHCI	EHCI	SEER 16	Pre 5-1-08	216	216	0.52	0.52	0	0
EHCI	EHCI	SEER 17	Post 5-1-08	178	178	0.29	0.29	0	0
EHCI	EHCI	SEER 17	Pre 5-1-08	271	271	0.65	0.65	0	0
EHCI	EHCI	SEER 18	Post 5-1-08	211	211	0.37	0.37	0	0
EHCI	EHCI	SEER 18	Pre 5-1-08	321	321	0.77	0.77	0	0
EHCI	EHCI	SEER 19	Post 5-1-08	239	239	0.39	0.39	0	0
EHCI	EHCI	SEER 19	Pre 5-1-08	364	364	0.87	0.87	0	0
EHCI	EHCI	SEER 20	Post 5-1-08	265	265	0.41	0.41	0	0
EHCI	EHCI	SEER 20	Pre 5-1-08	404	404	0.97	0.97	0	0

Program	Program Initiative	Measure	Qualifier	Deemed Verified kWh	Deemed Net kWh	Deemed Verified kW	Deemed Net kW	Deemed Verified Therms	Deemed Net Therms
ENERGY STAR - Appliances	Customer Rewards	Clothes Washers Tier 2	EE	341	341	0	0	0	0
ENERGY STAR - Appliances	Customer Rewards	Clothes Washers Tier 2	EG	170	170	0	0	5.8	5.8
ENERGY STAR - Appliances	Customer Rewards	Clothes Washers Tier 2	GE	188	188	0	0	6.5	6.5
ENERGY STAR - Appliances	Customer Rewards	Clothes Washers Tier 2	GG	17	17	0	0	12.3	12.3
ENERGY STAR - Appliances	Customer Rewards	Clothes Washers Tier 2	N/A			0	0		
ENERGY STAR - Appliances	Customer Rewards	Clothes Washers Tier 3	EE	393	393	0	0	0	0
ENERGY STAR - Appliances	Customer Rewards	Clothes Washers Tier 3	EG	197	197	0	0	6.7	6.7
ENERGY STAR - Appliances	Customer Rewards	Clothes Washers Tier 3	GE	216	216	0	0	7.6	7.6
ENERGY STAR - Appliances	Customer Rewards	Clothes Washers Tier 3	GG	20	20	0	0	14.3	14.3
ENERGY STAR - Appliances	Customer Rewards	Clothes Washers Tier 3	N/A			0	0		
ENERGY STAR - Appliances	Customer Rewards	Dehumidifier	N/A	50	50	0.05	0.05	0	0
ENERGY STAR - Appliances	Customer Rewards	Refrigerator	N/A	66	66	0.01	0.01	0	0
ENERGY STAR - Appliances	Customer Rewards	Water Heater	N/A	242	242	0.017	0.017	30	30
ENERGY STAR - Lighting	Customer Rewards	Ceiling Fan	N/A	175	175	0	0	0	0
ENERGY STAR - Lighting	Customer Rewards	CFL	Instant Post 5-1-08	42.5	31.9	0.0027	0.002	0	0
ENERGY STAR - Lighting	Customer Rewards	CFL	Instant Pre 5-1-08	38.4	28.8	0.0027	0.002	0	0
ENERGY STAR - Lighting	Customer Rewards	CFL	KEEP	38.4	38.4	0.0027	0.0027	0	0

Program	Program Initiative	Measure	Qualifier	Deemed Verified kWh	Deemed Net kWh	Deemed Verified kW	Deemed Net kW	Deemed Verified Therms	Deemed Net Therms
ENERGY STAR - Lighting	Customer Rewards	CFL	Mail In Post 5-1-08	47.7	35.8	0.0031	0.0023	0	0
ENERGY STAR - Lighting	Customer Rewards	CFL	Mail In Pre 5-1-08	43.5	32.6	0.0031	0.0023	0	0
ENERGY STAR - Lighting	Customer Rewards	CFL	MF	173	173	0.005	0.005	0	0
ENERGY STAR - Lighting	Customer Rewards	CFL	WR	51.1	51.1	0.004	0.004	0	0
ENERGY STAR - Lighting	Customer Rewards	Indoor Fixture/Lamp	N/A	104	104	0.004	0.004	0	0
ENERGY STAR - Lighting	Customer Rewards	Lighting Fixture	N/A	104	104	0.004	0.004	0	0
ENERGY STAR - Lighting	Customer Rewards	Lighting Fixture-LED	N/A	15.2	15.2	0	0	0	0
ENERGY STAR - Lighting	Customer Rewards	Torchiere	N/A	349	349	0.01	0.01	0	0
HPES	EHCI	Water Heater - Fuel Switch	N/A	3280	3280	0.25	0.25	-39	-39
HPES	Whole House	Attic Insulation	N/A	160	136	0.118	0.1	100	85
HPES	Whole House	Chimney Liner	N/A	0	0	0	0	81	81
HPES	Whole House	Duct Sealing	N/A	1080	1080	0.1	0.1	84	84
HPES	Whole House	Floor Insulation	N/A	126	107	0.093	0.079	79	67
HPES	Whole House	Foundation Insulation	Exterior	59	51	0	0	49	41
HPES	Whole House	Foundation Insulation	Interior	172	172	0	0	140	140
HPES	Whole House	Sidewall Insulation	1 inch Foam Continuous	60	60	0.4	0.4	41	41
HPES	Whole House	Sidewall Insulation	1/2 inch Foam Continuous	36	36	0.02	0.02	25	25
HPES	Whole House	Sidewall Insulation	Cavity	326	326	0.26	0.26	225	225
HPES	Whole House	Sill Box Insulation	N/A	53	45	0	0	39	33
HPES	Whole House	Water Heater - Fuel Switch	N/A	3280	3280	0.25	0.25	-39	-39
HPES	Whole House	Water Heater - Poor Draft	N/A	0.5	0.5	-0.005	-0.005	75	75

Program	Program Initiative	Measure	Qualifier	Deemed Verified kWh	Deemed Net kWh	Deemed Verified kW	Deemed Net kW	Deemed Verified Therms	Deemed Net Therms
THPES	Whole House	Home Weatherization	N/A	1192	1192	0.21	0.21	295	295
WESH	Reward Items	Drain Water	N/A	0	0	0	0	49	49
WESH	Reward Items	Low Solar Heat Gain Windows	N/A	104.87	104.87	0	0	-10.27	-10.27
WESH	Reward Items	Structural Plumbing - Gas Water Heater	N/A	0	0	0	0	91.9	91.9
WESH	Whole House	Certified Home	N/A	0	0	0	0	100	100

NOTE: HPES Air Conditioners and ENERGY STAR Clothes Washers are deemed measures, but are not reflected in this table for the draft report. They will appear in this table in the final report.

APPENDIX C: MEASURE LIFETIME AND NET INCREMENTAL COSTS BY PROGRAM BY B/C MEASURE CATEGORY

Table C-1. Measure Lifetime and Net Incremental Costs by Program by B/C Measure Category

BCI_ID	Program	Measure Category BC	Measure Life	NIC Value	NIC Unit
1101	Agriculture	CFL	6	2.2	avoided cost
1102	Agriculture	HVAC	15	2.5	avoided cost
1103	Agriculture	Manufacturing Process	12	1.29	avoided cost
1104	Agriculture	Motor	16	1.29	avoided cost
1105	Agriculture	Other Lighting	15	2.2	avoided cost
1107	Agriculture	Other	17	2.9	avoided cost
1201	Commercial	CFL	6	2.2	avoided cost
1202	Commercial	HVAC	15	2.5	avoided cost
1203	Commercial	Manufacturing Process	12	1.29	avoided cost
1204	Commercial	Motor	16	1.29	avoided cost
1205	Commercial	Other Lighting	15	2.2	avoided cost
1206	Commercial	Building Shell	10	6.18	avoided cost
1207	Commercial	Other	19	2.9	avoided cost
1301	Industrial	CFL	6	2.2	avoided cost
1302	Industrial	HVAC	15	2.5	avoided cost
1303	Industrial	Manufacturing Process	12	1.29	avoided cost
1304	Industrial	Motor	16	1.29	avoided cost
1305	Industrial	Other Lighting	15	2.2	avoided cost
1306	Industrial	Building Shell	10	6.18	avoided cost
1307	Industrial	Other	28	2.9	avoided cost
1401	Schools & Government	CFL	6	2.2	avoided cost
1402	Schools & Government	HVAC	15	2.5	avoided cost
1403	Schools & Government	Manufacturing Process	12	1.29	avoided cost
1404	Schools & Government	Motor	16	1.29	avoided cost
1405	Schools & Government	Other Lighting	15	2.2	avoided cost
1406	Schools & Government	Building Shell	10	6.18	avoided cost
1407	Schools & Government	Other	10	2.9	avoided cost
1501	Channel EHCI	CFL	6	2.2	avoided cost
1502	Channel EHCI	HVAC	15	2.5	avoided cost
1503	Channel EHCI	Manufacturing Process	12	1.29	avoided cost
1504	Channel EHCI	Motor	16	1.29	avoided cost
1505	Channel EHCI	Other Lighting	15	2.2	avoided cost
1506	Channel EHCI	Building Shell	10	6.18	avoided cost
1507	Channel EHCI	Other	19	2.9	avoided cost
1601	Channel Lighting	CFL	6	2.2	avoided cost
1602	Channel Lighting	HVAC	15	2.5	avoided cost
1603	Channel Lighting	Manufacturing Process	12	1.29	avoided cost
1604	Channel Lighting	Motor	16	1.29	avoided cost
1605	Channel Lighting	Other Lighting	15	2.2	avoided cost
1606	Channel Lighting	Building Shell	10	6.18	avoided cost
1607	Channel Lighting	Other	19	2.9	avoided cost
2107	ACES	Other	8	0.05207	kWh

BCI_ID	Program	Measure Category BC	Measure Life	NIC Value	NIC Unit
2207	EHCI	Other	20	1.16155	kWh
2208	EHCI	ECM Furnace	23	850	unit
2212	EHCI	SEER 12	20	350	unit
2213	EHCI	SEER 13	20	700	unit
2214	EHCI	SEER 14+	20	350	unit
2301	ENERGY STAR	CFL	6	4	unit
2305	ENERGY STAR	Other Lighting	25	0.06734	kWh
2307	ENERGY STAR	Other	12	0.75188	kWh
2309	ENERGY STAR	Clothes Washers	12	200	unit
2407	HPES	Other	25	6.41556	therm
2408	HPES	ECM Furnace	23	850	unit
2412	HPES	SEER 12	20	350	unit
2413	HPES	SEER 13	20	700	unit
2414	HPES	SEER 14+	20	1050	unit
2420	HPES	Air Sealing	25	375	home
2421	HPES	Attic Insulation	25	900	home
2422	HPES	Sidewall Insulation	25	1800	home
2507	THPES	Other	25	6100	home
2607	WESH	Other	12	0	unit
2608	WESH	ECM Furnace	23	0	unit
2612	WESH	SEER 12	20	0	unit
2613	WESH	SEER 13	20	0	unit
2614	WESH	SEER 14+	20	0	unit
2630	WESH	Home Certification	50	2445	home
4101	Renewables	Solar Electric	25	6.8	kWh
4102	Renewables	Wind	20	1.37	kWh
4103	Renewables	Solar Water Heating	20	16.1	therm
4104	Renewables	Biogas	20	3.06	kWh
4105	Renewables	Biomass-Combustion	20	1.92	therm
4107	Renewables	Other	25	0.2	kWh

APPENDIX D: RENEWABLE ENERGY PROGRAM SURVEY, FISCAL YEAR 2007 IMPACT INSTRUMENT

INTERVIEWER GUIDELINES

1. Record beginning and end-time
2. Do not read responses that are in brackets.
3. Read responses that are NOT in brackets
4. Read close-ended questions exactly as written.
5. Skip questions that are not applicable, but indicate they have been skipped by drawing a line through the question
6. Record open-ended answers verbatim, or read back to the respondent what you have recorded to make sure it captures what they meant.
7. Probe on open-ended questions to make sure you understand the issue completely.
8. Many questions have been converted from open-ends to close-ends. If the respondents answer does not fit a category be sure to select “other” and record the response.
9. After completing the interview, review your notes to make sure they are legible and comprehendible to others.
10. Try to complete data entry the same day that you conduct a survey.

CALL LOG FOR

MPAC.0030 [Focus on Energy Renewables Evaluation]

KEMA ID:_____

Type of project: _____

Type of customer (Res/Comm/Ind): _____

Contact Name: _____

Business Name: _____

Call Order: _____

hphone: _____

wphone: _____

email: _____

KEMA Employee initials	Date	Time	Notes (include message left, best time to call, best way to contact, and whether survey was completed)

Date of interview: _____

Interview start time: _____

Interview end time: _____

Reward Amount: _____

A INFORMED RESPONDENT

Hello, my name is _____ and I'm calling from KEMA Consulting on behalf of the Focus on Energy Program, the program that provided you with a cash back reward and other assistance to install the [TYPE OF PROJECT] on your [home/business]. I need to ask you some questions about your participation in the Renewable Energy Program. This is not a sales or marketing call. Focus on Energy is required by the state of Wisconsin to conduct these types of interviews to better understand and improve the program. Your responses will be kept entirely confidential.

Are you the best person to talk to about your [household's/business's] decision to install [TYPE OF PROJECT] and your experiences with the program? (IF NOT, GET CONTACT INFORMATION FOR CORRECT PERSON AND CALL THEM.)

I'd like to start by confirming some information. Our records show that you installed…

A1. [EQUIPMENT TYPE]_____

A2. [INSTALLATION MONTH AND YEAR] _____

A3. [AT ADDRESS] _____

Now I'd like to confirm some of the specifics for the [TYPE OF PROJECT].

A4. It was manufactured by [MANUFACTURER NAME] _____ and was rated to generate _____ (depending on type of project: kW, kWh, therms).

[NOTE: WE DON'T HAVE MANUFACTURER NAME FOR MANY SYSTEMS, SO BE SURE TO ASK CUSTOMER]

A5. Is this what was installed?

YES 1

NO 2

(If no, discuss and record any changes to the plans.)

_____

A6. Is this [TYPE OF PROJECT] operating now?

YES ..... [SKIP TO A7].1

NO 2

A6a. Why not? _____

_____

A7. Overall, how satisfied or dissatisfied would you say you are with the performance of the [TYPE OF PROJECT]? Would you say you are.

Very Dissatisfied 1

Somewhat Dissatisfied..... 2

Somewhat Satisfied 3

Very Satisfied 4

[Don't know]..... 97

[Refused] 98

A8. Why do you say that?

[Good performance] 1

[Poor performance] 2

[Less energy] 3

[Technical difficulties] 4

[Other, please describe _____] 96

[Don't know] 97

[Refused] 98

B DECISION TO INSTALL

Okay, now I'd like to start at the beginning and learn about when and why you decided to install a [TYPE OF PROJECT] in your home/facility.

B1. For what reasons did you decide to install a [TYPE OF PROJECT]? [CIRCLE ALL THAT APPLY, ASK IF ANY OTHERS]

[Were undertaking remodeling or expansion] 1

[Wanted to reduce energy costs] 2

[Commitment to environment] 3

[Wanted to get off the electric grid] 4

[New construction and too expensive to get on the grid] 5

[Wanted to educate others on renewable energy options] 6

[Other, please describe _____] 96

[Don't know] 97

[Refused] 98

B2. About when did you first start thinking of installing a [TYPE OF PROJECT]? (Month, year)

[RECORD AS MM:YY]: _____

B3. From where or whom did you hear about [TYPE OF PROJECT]?

[Independent reading/research] 1

[MREA – Midwest Renewable Energy Association] 2

[A friend or relative] 3

[Installer/contractor] 4

[Focus on Energy] 5

[Don't remember] 6

[Other, please describe _____] 96

[Don't know] 97

[Refused] 98

B4. Who did you contact, (where did you get information, etc.)

[Installer/contractor] 1

[MREA – Midwest Renewable Energy Association] 2

[Focus on Energy] 3

[Self-installer] 4

[Other, please describe _____] 96

[Don't know] 97

[Refused] 98

B5. At what point in the process did you learn about the Focus on Energy Renewables Program? Was it…

Before you started considering [TYPE OF PROJECT] 1

When you were considering [TYPE OF PROJECT] 2

After you decided to install [TYPE OF PROJECT] 3

[Don't know] 97

[Refused] 98

B6. From what sources did you hear about Focus on Energy? [CIRCLE ALL THAT APPLY]

[Utility] 1

[MREA – Midwest Renewable Energy Association] 2

[Installer/contractor] 3

[Friend or relative] 4

[The Internet] 5

[Other, please describe _____] 96

[Don't know] 97

[Refused] 98

B7. What did you hear about it? [RECORD VERBATIM THEN CIRCLE ALL THAT APPLY]

[_____

_____

_____

_____]

[Focus provided financial incentives/rebates available] 1

[Other services] 2

[They could provide me with technical information] 3

[They could provide me with information about rebates or tax credits] 4

[They could provide me information about rules or utility buy-back rates]..... 5

[Other, please describe _____ 96

[Don't know]..... 97

[Refused] 98

B8. Why did you participate in the Focus on Energy Renewable program? [RECORD VERBATIM THEN CIRCLE ALL THAT APPLY]

[_____

_____

_____

_____]

[Wanted to take advantage of financial incentives]..... 1

[Wanted technical assistance]..... 2

[Wanted help reviewing proposals] 3

[Equipment vendor included incentive in sales proposal] 4

[Commitment to environment]..... 5

[Other, please describe _____] 96

[Don't know]..... 97

[Refused] 98

B9. At what point in the planning for the installation of a [TYPE OF PROJECT] did your household/business learn cash incentives were available? Would you say it was… [READ LIST]

Before the start of planning..... 1

About the same time as the start of planning 2

Just after planning started 3

Long after planning started 4

[Don't know] 97

[Refused] 98

B10. Have you ever received assistance from Focus on Energy for energy efficiency improvements to your [home/business]?

Yes 1

No ..... [SKIP TO C1] 2

[Don't know] 97

[Refused] 98

B11. What kind of assistance did you receive for energy efficiency improvements?

Rebate 1

Advice 2

Other (describe) _____

_____ 96

[Don't know] 97

[Refused] 98

C DETERMINE PROGRAM IMPACT ON DECISION TO INSTALL (NET-TO-GROSS)

Facilitation

C1. Approximately how many times did you have contact with Focus on Energy staff, either by phone, email, or in person? [If respondent is unsure, probe using name of Focus staff member assigned to project]

0 →skip to C3

_____ Number of times contacted Focus staff

C1a. What did you discuss with Focus on Energy staff? (probe: application process, technical issues, insurance, contractors, other?)

[Additional improvements] 1

[Technical information] 2

[Electrical code information] 3

[Insurance information] 4

[Incentives available from Focus] 5

[Federal tax credits] 6

[Federal grants available] 7

[Other, please describe _____] 96

[Don't know/don't remember] 97

[Refused] 98

C2. How did these contacts with Focus on Energy staff affect your decision to pursue the [TYPE OF PROJECT]? Would you say the contacts... [READ LIST]

Were a *very important* factor in my decision to pursue the project 1

Were a *somewhat important* factor in my decision to pursue the project 2

Made no difference 3

Made me less inclined to pursue the project 4

Other, please describe _____96

[Don't know] 97

[Refused] 98

C3. What types of challenges or obstacles, if any, did you encounter in the process of installing the [TYPE OF PROJECT]? (Probe for issues such as insurance, installers, permits, dealing with utility connection, money, technical problems.) [RECORD VERBATIM THEN CIRCLE ALL THAT APPLY]

_____

_____

_____

[None] ..... [SKIP TO C6] 1

[Information] 2

[Application process] 3

[Technical difficulties] 4

[Difficulties with contractor/installer] 5

[Difficulties with Focus] 6

[Difficulties with utility] 7

[Insurance] 8

[Permits/ordinance] 9

[Cost] 10

[Other, please describe _____] 96

[Don't know] 97

[Refused] 98

C4. How were these resolved? [RECORD VERBATIM THEN CIRCLE ALL THAT APPLY]

_____

_____

_____

[Not resolved] 1

[Focus incentive] 2

[Info from Focus] 3

[Assistance from Focus] 4

[Resolved by respondent] 5

[Contractor/installer] 6

[Manufacturer] 7

[Other, please describe _____] 96

[Don't know] 97

[Refused] 98

C5. Did Focus on Energy staff play a role in resolving this (these) issues?

[Yes] 1

[No] 2

[Some but not all] 3

[Don't know] 97

[Refused] 98

C5a. If yes, what role?

_____

_____

C6. Did you or anyone else in your [household/company] attend a workshop about [TYPE OF PROJECT]?

Yes 1

No ..... [SKIP TO C10] 2

[Don't know] ..... [SKIP TO C10] 97

[Refused] ..... [SKIP TO C10] 98

C7. What, if any, benefits did you get out of attending the workshop? [RECORD VERBATIM and then CIRCLE ALL THAT APPLY]

_____

_____

[Provided technical information we needed to make a decision] 1

[Provided even more reasons to install a [TYPE OF PROJECT] 2

[Confirmed our commitment to installing a [TYPE OF PROJECT] 3

[Provided access to "experts" that we needed in order to install the system] 4

[Increased our knowledge related to the financial costs and benefits of [TYPE OF PROJECT] 5

[Increased our knowledge of the environmental impacts of renewable energy projects] ... 6

[Helped us better understand the process for installing a [TYPE OF PROJECT] 7

[Helped us better understand the challenges with installing a [TYPE OF PROJECT] 8

[Other, please describe _____] 96

[Don't know 97

[Refused] 98

C8. How did the workshop affect your decision to pursue the [TYPE OF PROJECT]? Would you say the workshop… [READ LIST]

Was a *very important* factor in my decision to pursue the project 1

Was a *somewhat important* factor in my decision to pursue the project 2

Made no difference 3

Made me less inclined to pursue the project 4

Other, please describe _____ 96

[Don't know] 97

[Refused] 98

C9. Why do you say this?

_____

_____

_____

Site Assessment

C10. Did you have a site assessment done before installation by Focus on Energy at your [home/business]?

Yes 1

No ..... [SKIP TO C14] 2

[Don't know] ..... [SKIP TO C14] 97

[Refused] ..... [SKIP TO C14] 98

C11. What benefits, if any, did you get from the site assessment? [RECORD VERBATIM and then CIRCLE ALL THAT APPLY]

_____

_____

[Provided technical information we needed to make a decision] 1

[Provided even more reasons to install a [TYPE OF PROJECT]] 2

[Confirmed our commitment to installing a [TYPE OF PROJECT]] 3

[Provided access to "experts" that we needed in order to install the system] 4

[Increased our knowledge related to the financial costs and benefits of [TYPE OF PROJECT] 5

[Increased our knowledge of the environmental impacts of renewable energy projects] .. 6

[Helped us better understand the process for installing a [TYPE OF PROJECT]] 7

[Helped us better understand the challenges with installing a [TYPE OF PROJECT]] 8

[Other, please describe _____]96

[Don't know] 97

[Refused] 98

C12. How did the site assessment affect your decision to pursue the installation of a [TYPE OF PROJECT]? Would you say it... [READ LIST]

Was a *very important* factor in my decision to pursue the project 1

Was a *somewhat important* factor in my decision to pursue the project 2

Made no difference 3

Made me less inclined to pursue the project 4

No site assessment 5

Other, please describe _____ 96

[Don't know] 97

[Refused] 98

C13. Why do you say this?

_____

_____

_____

[Don't know] 97

[Refused]..... 98

Cash Incentive

C14. Our records show that you received $_____ in financial assistance from Focus on Energy for your [TYPE OF PROJECT] project, and that the total cost of your project was $_____. Is this correct?

Yes..... 1

No 2

[RECORD CORRECT AMOUNTS:_____]

[Don't know] 97

[Refused]..... 98

C15. Did you receive financial assistance such as rebates, grants, reduced financing, or tax credits from any other source for this project?

Yes..... 1

No .....[SKIP TO D1] 2

[Don't know] .....[SKIP TO D1] 97

[Refused].....[SKIP TO D1] 98

C16. From what sources?

Federal tax credits..... 1

Department of Agriculture grant 2

City of Madison 3

Other (please describe _____ 96

[Don't know] 97

[Refused]..... 98

C17. About how much?

_____Record Amount

[Don't know] 97

[Refused]..... 98

D ATTRIBUTION

Now that we have discussed the services and incentives you received from the Focus on Energy Renewable Program, I'd like you to think about the impact these services had on your installation of the [TYPE OF PROJECT].

D1. Without the Focus on Energy Program, would you say the likelihood of installing the [TYPE OF PROJECT] was… [READ LIST]

Very likely 1

Somewhat likely..... 2

Not very likely 3

Or very unlikely .....[SKIP TO D7] 4

[Don't know].....[SKIP TO D7] 97

[Refused] .....[SKIP TO D7] 98

D2. Without these services and incentives, how different would the timing have been for the project? Would you say the timing would have been…[READ LIST]

About the same.....[SKIP TO D4] 1

Earlier .....[SKIP TO D4] 2

Or later..... 3

[Don't know].....[SKIP TO D4] 97

[Refused] .....[SKIP TO D4] 98

D3. About how much later? [TRY TO GET A NUMBER]

[RECORD NUMBER OF MONTHS OR YEARS] ..... _____

[Don't know]..... 97

[Refused] 98

D4. Without these services or incentives, how different would the renewable energy project have been? Would you say the project capacity would have been the… [READ LIST]

Same size.....[SKIP TO D7] 1

Smaller 2

Or larger .....[SKIP TO D6] 3

[Don't know].....[SKIP TO D7] 97

[Refused] .....[SKIP TO D7] 98

D5. How much smaller—what percent of the installed project?

[RECORD PERCENTAGE 0–99]..... _____

[Don't know]..... 97

[Refused] 98

D6. How much larger—what percent greater than the installed project?

[RECORD PERCENTAGE ≥101] ..... _____

[Don't know] 97

[Refused] 98

D7. What would your household/company have done if it had not received cash incentives or other services from Focus on Energy? (In your own words describe influence of Focus)

_____

_____

_____

_____

[Don't know] 97

[Refused] 98

E ENGINEERING QUESTIONS

This section of the survey asked factual questions specific to the installation of the equipment. A series of questions was developed for each technology that covered the following areas:

A. Equipment installation details

B. Date system began operating

C. Determining whether the equipment is currently functioning and whether there have been any problems. Length of time system has been or was down (if applicable).

D. Obtain readings from inverters or meters specific to the renewable energy system, if available.

E. Any pertinent operating characteristics (such as seasonally changing tilt angle on PV systems).

F. Determine uses of the system.

G. Filling data gaps necessary for engineering calculation.

F BARRIERS TO IMPLEMENTING RENEWABLE ENERGY PROJECTS

Enrollment Process

F1. What suggestions, if any, do you have on how to encourage other [households/businesses] to participate in the program? [IF "yes," PROBE] What are they? [ACCEPT MULTIPLE RESPONSES]

[None] 1

[Increase awareness/advertise] 2

[Be more clear] 3

[Have better engineers] 4

[Other, please describe _____] 96

[Don't know] 97

[Refused] 98

Overall

F2. How satisfied or dissatisfied are you with the technical performance of the [TYPE OF PROJECT]? How would you rate your satisfaction on a 5-point scale with 1 meaning "not at all satisfied" and 5 meaning "very satisfied?"

1 (not at all satisfied) 1

2 2

3 3

4 4

5 (very satisfied) 5

[Don't know] 97

[Refused] 98

F3. Is your [household/company] considering any additional renewable energy projects or considering expanding your [TYPE OF PROJECT]?

Yes 1

No 2

[Don't know] 97

[Refused] 98

F4. Next I'd like to know how satisfied or dissatisfied you are with the Focus on Energy program. Using a scale of 1 to 5, where 1 means "not at all satisfied" and 5 means "very satisfied," overall, how satisfied are you with the Focus on Energy Program?

1 (not at all satisfied) 1

2 2

3 3

4 4

5 (very satisfied) 5

[Don't know] 97

[Refused] 98

F5. Why do you say that? [OPEN END] record verbatim.

F6. Are there any other comments you'd like me to pass on about the program?

G DEMOGRAPHICS–FOR HOUSEHOLDS ONLY

Finally, I need to ask you a few questions about your household. These questions are for classification purposes only. All of your answers are confidential.

G1. Do you own or rent this residence?

Own/buying 1

Rent/lease 2

Other, please describe _____ 96

[Don't know/not sure] 97

[Refused] 98

G2. What type of residence is this? Is it a... [Read list, record one number]

Single family home (house on separate lot, includes modular homes) .....[SKIP TO G5] 1

Row or townhouse (adjacent walls to another house) .....[SKIP TO G5] 2

A unit in a multi-family structure, 2–4 attached units (example: duplex, triplex, fourplex, or single family house converted to flats) 3

A unit in a multi-family structure, 5 or more attached units (example: apartment building, high-rise condominium, garden apartments) 4

Mobile home, house trailer .....[SKIP TO G5] 5

Other, please describe: _____96

[Don't know/not sure] 97

[Refused] 98

G3. (IF G2 = 4) How many units are in your building?

5–9 units 1

10–19 units 2

20–49 units 3

50+ units 4

[Don't know/not sure] 97

[Refused] 98

G4. (If G1 =1 and (G2 = 3 or 4)) Do you own a single unit or do you own the entire building?

Single unit 1

Entire building 2

Other, please describe _____ 96

[Don't know/not sure] 97

[Refused] 98

G5. In approximately what year was this residence/facility built? (Fill in blank)

[PUT IN FULL YEAR – Ex: 1957] Year Built..... ____

[Don't know/not sure] 97

[Refused] 98

G6. How many **years** have you lived at this residence?

[RECORD NUMBER. If less than one year, record ZERO] ..... _____

[Don't know/not sure] 97

[Refused] 98

G7. How many people live in this residence full-time, including yourself and any infants?

[RECORD NUMBER] ..... _____

[Refused] 98

G8. What is the total enclosed square footage of your home? Your best estimate is fine.

[RECORD # SQ FT] ..... _____

[Don't know] 97

[Refused] 98

Those are all the questions I have for today. Thank you for taking the time to talk with me.

X FIRMOGRAPHICS–FOR NONRESIDENTIAL ONLY

Finally, I need to ask you a few questions about your business/farm. These questions are for classification purposes only. All of your answers are confidential.

X1. How would you best describe this business/farm? Is it a . . . [Interviewer – verbatim is not as important as getting the right answer]

Dairy Farm 1

Other farm 2

School 3

Hotel or motel 4

Other (describe) _____ 96

[Don't know/not sure] 97

[Refused] 98

X2. Which best describes your facilities at this location? Is it:

A single, stand alone building..... [Skip to X4] 1

Multiple buildings 2

School..... [Skip to X4] 3

Hotel or motel ..... [Skip to X4] 4

Other (describe) _____ [Skip to X4] 96

[Don't know/not sure] ..... [Skip to X4] 97

[Refused] ..... [Skip to X4] 98

X3. How many buildings do you occupy at this location?

_____ Record number of buildings

X4. Approximately how many full-time employees do you have at this location?

_____Record number of FTEs

Those are all the questions I have for today. Thank you for taking the time to talk with me.

APPENDIX E: TABLES AND FIGURES LINKED TO THE TYPE OF IMPACTS

Reference Number	Title	Gross	Verified	Net
Table 2-1a	All Programs: Tracked Energy Impacts—Lifecycle Verified Gross (July 1, 2001–June 30, 2008)		Lifecycle	
Table 2-1b	All Programs: Tracked Energy Impacts—Annual First Year Verified Gross (July 1, 2001–June 30, 2008)		First - Year	
Table 2-1c	All Programs: Tracked Energy Impacts - Lifecycle Verified Gross and Lifecycle Verified Net (July 1, 2001–June 30, 2008)		Lifecycle	Lifecycle
Table 2-1d	All Programs: Tracked Energy Impacts - Annual First Year Program to Date (July 1, 2001–June 30, 2008)	First - Year	First - Year	First - Year
Figure 2-1	Lifecycle Verified Gross Electricity Savings (GWh)		Lifecycle	
Figure 2-2	Lifecycle Verified Gross Electricity Demand Reductions (MW)		Lifecycle	
Figure 2-3	Lifecycle Verified Gross Gas Savings (Million Therms)		Lifecycle	
Figure 2-4	Persistent Verified Net Electricity Savings (GWh)			Persistent
Figure 2-5	Persistent Verified Net Electricity Demand Reductions (MW)			Persistent
Figure 2-6	Persistent Verified Net Gas Savings (Million Therms)			Persistent
Table 2-2	Electric Energy Impacts by Measure Category - Business Programs		First - Year	
Table 2-3	Gas Energy Impacts by Measure Category, Business Programs		First - Year	
Table 2-4	Electric Energy Impacts by Measure Category, Residential Programs		First - Year	
Table 2-5	Gas Energy Impacts by Measure Category, Residential Programs		First - Year	
Table 2-11	Net Emissions Displaced (lbs) Annually July 1, 2007–June 30, 2008			First - Year
Table 2-12	Net Emissions Displaced (lbs) Annually Cumulative in Current Year (July 1, 2001–June 30, 2008)			First - Year
Table 2-13	Value of Non-Energy Benefits by Program Area			First - Year/Persistent
Table 2-15	Simple Benefit-Cost and Cost of Conserved Energy July 1, 2007–June 30, 2008			Persistent
Table 2-16	Simple Benefit-Cost and Cost of Conserved Energy Program to Date (July 1, 2001–June 30, 2008)			Persistent
Table 2-19	Comparisons of Focus Electric Energy Impacts (Net, 12 Month Period from July to June) and Achievable Potential—Commercial & Industrial Markets			First - Year
Table 2-20	Comparisons of Focus Gas Energy Impacts (Net, 12 Month Period from July to June) and Achievable Potential—Commercial & Industrial Markets			First - Year
Table 2-21	Comparisons of Focus Electric Energy Impacts (Net, 12 Month Period from July to June) and Achievable Potential—Residential Markets			First - Year
Table 2-22	Comparisons of Focus Gas Energy Impacts (Net, 12 Month Period from July to June) and Achievable Potential—Residential Markets			First - Year
Table 2-23	Comparisons of Focus Electric Energy Impacts (Net, 12 Month Period from July to June) and Achievable Potential—Renewables Markets			First - Year

Reference Number	Title	Gross	Verified	Net
Table 2-24	Comparisons of Focus Gas Energy Impacts (Net, 12 Month Period from July to June) and Achievable Potential—Renewables Markets			First - Year
Table 3-4a	All Business Programs: Tracked Energy Impacts First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)	First - Year	First - Year	First - Year
Table 3-4b	All Business Programs: Tracked Energy Impacts FY07 (July 1, 2006–June 30, 2007)	First - Year	First - Year	First - Year
Table 3-4c	All Business Programs: Tracked Energy Impacts FY06 (July 1, 2005–June 30, 2006)	First - Year	First - Year	First - Year
Table 3-4d	All Business Programs: Tracked Energy Impacts FY05 (July 1, 2004–June 30, 2005)	First - Year	First - Year	First - Year
Table 3-4e	All Business Programs: Tracked Energy Impacts FY04 (July 1, 2003–June 30, 2004)	First - Year	First - Year	First - Year
Table 3-4f	All Business Programs: Tracked Energy Impacts FY03 (July 1, 2002–June 30, 2003)	First - Year	First - Year	First - Year
Table 3-4g	All Business Programs: Tracked Energy Impacts FY02 (July 1, 2001–June 30, 2002)	First - Year	First - Year	First - Year
Table 3-5	Agriculture First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)		First - Year	
Table 3-6	Commercial First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)		First - Year	
Table 3-7	Industrial First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)		First - Year	
Table 3-8	Schools & Government First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)		First - Year	
Table 3-9	Net Business Program Savings versus Business Program Portfolio Targets First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)			First - Year
Table 4-1a	All Residential Programs: Tracked Energy Impacts First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)	First - Year	First - Year	First - Year
Table 4-1b	All Residential Programs: Tracked Energy Impacts FY07 (July 1, 2006–June 30, 2007)	First - Year	First - Year	First - Year
Table 4-1c	All Residential Programs: Tracked Energy Impacts FY06 (July 1, 2005–June 30, 2006)	First - Year	First - Year	First - Year
Table 4-1d	All Residential Programs: Tracked Energy Impacts FY05 (July 1, 2004–June 30, 2005)	First - Year	First - Year	First - Year
Table 4-1e	All Residential Programs: Tracked Energy Impacts FY04 (July 1, 2003–June 30, 2004)	First - Year	First - Year	First - Year
Table 4-1f	All Residential Programs: Tracked Energy Impacts FY03 (July 1, 2002–June 30, 2003)	First - Year	First - Year	First - Year
Table 4-1g	All Residential Programs: Tracked Energy Impacts FY02 (July 1, 2001–June 30, 2002)	First - Year	First - Year	First - Year
Table 4-2	Net Residential Program Savings versus Residential Program Portfolio Targets First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)			First - Year
Table 4-3	ENERGY STAR - Appliances Products Program: Tracked Energy Impacts First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)		First - Year	
Table 4-4	ENERGY STAR - Lighting Products Program: Tracked Energy Impacts First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)		First - Year	

Reference Number	Title	Gross	Verified	Net
Table 4-6	Wisconsin ENERGY STAR Homes: Tracked Energy Impacts First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)		First - Year	
Table 4-8	Home Performance with ENERGY STAR: Tracked Energy Impacts First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)		First - Year	
Table 4-11	Apartment and Condominium Efficiency Services: Tracked Energy Impacts First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)		First - Year	
Table 4-12	Targeted Home Performance with ENERGY STAR: Tracked Energy Impacts First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)		First - Year	
Table 4-14	Efficient Heating and Cooling: Tracked Energy Impacts First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)		First - Year	
Table 4-15	Head Start CFL: Tracked Energy Impacts First 12 Months of the 18-Month Contract Period (July 1, 2007–June 30, 2008)		First - Year	
Table A-1	Commercial Programs Per Capita Energy, Electric or Gas Bill Savings by County Net Cumulative Savings (July 1, 2001–June 30, 2008)		Lifecycle	Persistent
Table A-2	Commercial Programs Implemented Energy, Electric or Gas Bill Savings by Senate District Net Cumulative Savings (July 1, 2001–June 30, 2008)		Lifecycle	Persistent
Table A-3	Commercial Programs Implemented Energy, Electric or Gas Bill Savings by Assembly District Net Cumulative Savings (July 1, 2001–June 30, 2008)		Lifecycle	Persistent
Table A-4	Commercial Programs Per Capita Energy, Electric Bill Savings by Electric Utility Territory Net Cumulative Savings (July 1, 2001–June 30, 2008)		Lifecycle	Persistent
Table A-5	Commercial Program Energy Impacts (By Participating Gas Utility) Net Cumulative Savings (July 1, 2007–June 30, 2008)		Lifecycle	Persistent
Table A-6	Industrial Programs Per Capita Energy, Electric or Gas Bill Savings by County Net Cumulative Savings (July 1, 2001–June 30, 2008)		Lifecycle	Persistent
Table A-7	Industrial Programs Implemented Energy, Electric or Gas Bill Savings by Senate District Net Cumulative Savings (July 1, 2001–June 30, 2008)		Lifecycle	Persistent
Table A-8	Industrial Programs Implemented Energy, Electric or Gas Bill Savings by Assembly District Net Cumulative Savings (July 1, 2001–June 30, 2008)		Lifecycle	Persistent
Table A-9	Industrial Programs Per Capita Energy, Electric Bill Savings by Electric Utility Territory Net Cumulative Savings (July 1, 2001–June 30, 2008)		Lifecycle	Persistent

Reference Number	Title	Gross	Verified	Net
Table A-10	Industrial Programs Per Capita Energy, Gas Bill Savings by Gas Utility Net Cumulative Savings (July 1, 2001–June 30, 2008)		Lifecycle	Persistent
Table A-11	Residential Programs Per Capita Energy, Electric or Gas Bill Savings by County Net Cumulative Savings (July 1, 2001–June 30, 2008)		Lifecycle	Persistent
Table A-12	Residential Programs Implemented Energy, Electric or Gas Bill Savings by Senate District Net Cumulative Savings (July 1, 2001–June 30, 2008)		Lifecycle	Persistent
Table A-13	Residential Programs Implemented Energy, Electric or Gas Bill Savings by Assembly District Net Cumulative Savings (July 1, 2001–June 30, 2008)		Lifecycle	Persistent
Table A-14	Residential Programs Per Capita Energy, Electric Bill Savings by Electric Utility Territory Net Cumulative Savings (July 1, 2001–June 30, 2008)		Lifecycle	Persistent
Table A-15	Residential Programs Per Capita Energy, Gas Bill Savings by Gas Utility Net Cumulative Savings (July 1, 2001–June 30, 2008)		Lifecycle	Persistent
Table A-16	Renewable Energy Program Completed Projects and Their Energy Impacts by County Verified Gross Savings (July 1, 2007–June 30, 2008)		First - Year	

APPENDIX F: ENDNOTES

Endnotes include sources and references supporting this report.

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[i] *Economic Development Benefits: FY07 Economic Impacts Report.* Lisa Petraglia, Glen Weisbrod, Brian Baird. Final: February 23, 2007.

[ii] *Estimating Seasonal and Peak Environmental Emissions Factors.* With Carmen Best, David Sumi, Bryan Ward, Bryan Zent, and Karl Hausker. Report for the Wisconsin Department of Administration, Division of Energy Focus on Energy statewide evaluation. May 2004.

[iii] The Renewable Energy Program savings are evaluation-verified gross, not net.

[iv] *Interim Benefit-Cost Analysis: FY07 Evaluation Report*. Miriam L. Goldberg, Chris Clark, Sander Cohan. Final: February 26, 2007.

[v] State of Wisconsin, Public Service Commission of Wisconsin, Focus on Energy Evaluation: Residential Lighting Program Compact Fluorescent Lighting Installation Rate Study, December 27, 2007.

[vi] State of Wisconsin, Public Service Commission of Wisconsin, Focus on Energy Evaluation: Analysis of Delta Watts Values for CFLs Rewarded through the Residential Lighting Program during FY07, March 6, 2008

[vii] State of Wisconsin, Public Service Commission of Wisconsin, Focus on Energy Evaluation: FY07 Metrics Performance—Residential Programs, January 21, 2008.

[viii] We were not able to include fixtures in the analysis because, unfortunately, retailers were not coded in the RLP database in FY06. We were still, however, able to use the data available to confirm attainment of the metric goal with the inclusion of fixtures. In FY07, 8,785 of the 15,811 fixtures rewarded through RLP were sold in the targeted channels (drug, grocery, lighting showroom, and mass merchant). This yields 93,352 CFLs and fixtures rewarded during FY07 in the targeted channels (84,567 + 8,785). In FY06, a total of 25,041 fixtures were rewarded through RLP. The worst case scenario in terms of metrics attainment is that all of the fixtures rewarded in FY06 were sold in the targeted channels. This would yield 75,506 CFLs and fixtures rewarded during FY06 in the targeted channels (50,465 + 25,041). This worst case scenario would yield a 24% increase from FY06 to FY07, which still exceeds the metric goal.

[ix] State of Wisconsin, Public Service Commission of Wisconsin, Focus on Energy Evaluation: FY07 Metrics Performance—Residential Programs, January 21, 2008.

[x] This is the classification rule that was agreed to and used when this metric was previously measured.

[xi] State of Wisconsin, Public Service Commission of Wisconsin, Focus on Energy Evaluation: FY07 Metrics Performance—Residential Programs, January 21, 2008.

[xii] An inherent disadvantage to FACTS is that not all distributors in Wisconsin provide data, resulting in coverage of only 50–60 percent of the Wisconsin market. For the purposes of measuring this metric, we assume that the market share of ECM furnaces sold by distributors outside of FACTS is the same

as that sold by distributors involved with FACTS. We recommend a continuation of the efforts to improve the market coverage of FACTS.

[xiii] It is important to note that the metrics measurement process is not assessing attribution. It simply involves measuring the total change in ECM furnace market share. Separating the change in ECM furnace market share into its component pieces (i.e., program-induced versus naturally occurring) is addressed through the net-to-gross analysis (State of Wisconsin Department of Administration, Division of Energy. Focus on Energy Public Benefits Evaluation: FY05 Net-to-Gross Savings Adjustments for 12/13+ SEER Central Air Conditioners and ECM Furnaces. Memorandum issued by Tom Talerico and Rick Winch, Glacier Consulting Group. June 27, 2006).