

**Joint Utility
Low Income Energy Efficiency Program
2001 Costs and Bill Savings
Standardization Report**

Final Report

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1 EXECUTIVE SUMMARY

This report presents the results of applying the accepted methodology for determining costs and bill savings estimates of the Low Income Energy Efficiency (LIEE) program in compliance with Decision (D) 01-12-020, Ordering Paragraph 4. The method used is consistent with cost-effectiveness methods and calculations used in the Annual Earnings Assessment Proceedings (AEAP). Bill savings and expenditures are presented for the utilities' Program Year (PY) 1999, PY2000, and PY2001 LIEE programs.

The results are summarized in Exhibits 1.1 and 1.2. In order to compare average customer bill savings across the state, it is useful to compare the total service by service area. For the final analysis purposes of this document, the SoCalGas and SCE programs were assessed as a single entity since they serve roughly the same customers.

Exhibit 1.1

Summary of Bill Savings to Cost Ratios by Service Area

Program Year	PG&E	SDG&E	Combined SCE and SoCalGas	SCE	SoCalGas
1999	0.67	0.43	0.56	1.37	0.19
2000	0.75	0.48	0.66	1.72	0.15
2001	0.60	0.60	0.58	1.08	0.16

Exhibit 1.2

Summary of Average Per Home Life Cycle Bill Savings by Service Area

Program Year	PG&E	SDG&E	Combined SCE and SoCalGas	SCE	SoCalGas
1999	\$ 391	\$ 162	\$ 293	\$ 180	\$ 113
2000	\$ 581	\$ 226	\$ 400	\$ 294	\$ 107
2001	\$ 471	\$ 359	\$ 348	\$ 241	\$ 107

The following general comments can be made concerning these summary values:

- **PY1999** values shown do not exactly match the values in the 2001 Bill Savings Report¹ due to subtleties in the methodology used to calculate the net present value stream of energy rates. Because PY1999 was fully analyzed in the 2001 Bill Savings Report, no other comment on the differences between the utilities is presented here.
- **PY2000** variations are mainly due to differences in installation and estimated energy savings of three measures – compact fluorescent lamps (CFLs), refrigerators, and low-flow showerheads.

¹ "Joint Utility Low Income Energy Efficiency Program Costs and Bill Savings Standardization Report", dated February 1, 2001, and filed with the Commission February 1, 2001, then refiled on March 12, 2001 as a revised report dated March 5, 2001.

- **PY2001** dissimilarities were mainly due to differences in installation rates of CFLs and refrigerators.

During the three year period from 1999 to 2001, the three electric utilities steadily increased the rate at which refrigerators were installed. SoCalGas increased their installation rate of low-flow showerheads, faucet aerators, and outlet gaskets.

It should be noted that due to the methodology used for forecasting energy rates, significant single year changes in energy rates can cause substantial perturbations in the life cycle bill savings. This phenomenon is seen in this report, resulting from PG&E having a higher PY2001 term rate than the other two gas utilities. In future reports the bill savings estimates will self-correct as the PY2001 energy rates are replaced by energy rates for subsequent years.

The standardization efforts covering the four utilities during this three year period appear to be bringing the bill savings to cost ratio and bill savings per home served closer together. Although the same measures are offered across the state, the primary controlling factor in per home savings is the installation rates of the measures. However, if installation rate differences are accounted for, the LIEE programs appear to be offering similar programs statewide.

This report also includes the Measure Savings Matrix required as part of the Utilities' AEAP filing. Ordering Paragraph 4 of the Assigned Commissioner Ruling Regarding Post-2001 Program Planning For Low Income Assistance Programs (February 27, 2002), ordered the utilities to "include in their Annual Report on LIEE activities, due May 1, 2002, comparative information on how the savings for each home was determined." The utilities have prepared this matrix and included it as Appendix A to this report.

2 INTRODUCTION

In compliance with Decision (D.) 01-12-020, Ordering Paragraph 4, this report presents an analysis of the estimated costs and bill savings for the Low Income Energy Efficiency (LIEE) program using the methodology developed pursuant to an order from the California Public Utilities Commission (Commission) under D. 00-07-020, Ordering Paragraph 7. Those methods were reported in a report titled “Joint Utility Low Income Energy Efficiency Program Costs and Bill Savings Standardization Report” dated February 1, 2001, and filed with the Commission February 1, 2001, then re-filed on March 12, 2001 as a revised report dated March 5, 2001 (hereafter in this report referred to as the 2001 Bill Savings Report). The proposed methodology and the results of the analysis were adopted for future use under D.01-12-020 dated December 11, 2001. This report summarizes the standardized methods, explains how the methods are consistent with cost-effectiveness methods and Annual Earnings Assessment Proceeding (AEAP) calculations, and presents utility LIEE program bill savings and expenditure results for Program Year (PY) 1999, PY2000 and PY2001.

In order to maintain consistency between program years and to faithfully follow the methodology created in the last Bill Savings Report, the results presented here do not incorporate any of the non-energy benefits of low income programs.

This report also includes the Measure Savings Matrix required as part of the Utilities’ AEAP filing. Ordering Paragraph 4 of the Assigned Commissioner Ruling Regarding Post-2001 Program Planning For Low Income Assistance Programs (February 27, 2002), ordered the utilities to “include in their Annual Report on LIEE activities, due May 1, 2002, comparative information on how the savings for each home was determined.” The utilities have prepared this matrix and included it as Appendix A to this report.

2.1 Background to the Bill Savings Method

In mid-2000, the Administrative Law Judge (ALJ) handed down a final opinion on the Program Year 2000 Low Income Assistance Programs (D.00-07-020, dated July 6, 2000). The opinion stated “...our inquiry is limited by the lack of consistent data on program bill savings, expenditures and cost-effectiveness calculations, with which to evaluate the relevant performance of the utilities’ LIEE programs.”² The utilities were directed as follows:

“7. With input from interested parties and the LIAB, the utilities shall jointly develop standardized methods for producing bill savings and expenditures for LIEE programs on an overall program and per unit basis, by utility. The methods used to produce this information shall be consistent with the methodologies used to evaluate energy efficiency costs and savings in the Annual Earnings and Assessment Proceedings (AEAP). The utilities shall coordinate with Energy Division on all aspects of methodology design and implementation.

The utilities shall file a joint report no later than February 1, 2001, presenting the proposed standardized methods and explain how the methods are consistent with cost-effectiveness methods and calculations utilized in the AEAP. In this report, the

² Page 70, Decision 00-07-020 July 6, 2000.

utilities shall apply the proposed methods to calculate bill savings and expenditures for their PY1997, PY1998, and PY1999 LIEE programs, or explain why a study of a particular program year would be duplicative of what has already been done in the AEAP. In that event, the results of the AEAP study shall be presented. All assumptions and work papers shall be presented. To the extent that data has been compiled for PY2000 programs, the report shall provide bill savings and expenditure calculations for that PY (or portion thereof) as well.”³

The report ordered by D.00-07-020 (2001 Bill Savings Report) was filed on time with errata filed on March 12, 2001. Full details of the methodology used for the ordered report and this subsequent report are provided in the 2001 Bill Savings Report. However, highlights are presented next for clarity.

2.2 Costs

Throughout this document, the term “cost” is used in lieu of the term “expenditure”. This is done because cost is deemed to be the net amount actually paid for goods or services. Expenditure, on the other hand, represents the amount spent, which can be different than the amount paid for the product or service if any portion is reimbursed or recompensed in any way. Costs can be synonymous with expenditure if there is no reimbursement. To reduce confusion, the term cost is used throughout. In addition, costs only refer to LIEE costs unless otherwise specifically stated.

The 2001 Bill Savings Report made a concerted effort to refine, for LIEE purposes, the cost definitions established in Table TA7.2 of the Reporting Requirements Manual (RRM).

Costs for the LIEE programs are parsed in several ways in Table TA 7.2. There are 16 cost variables along the left side of the table, and each cost variable is divided into columns for labor, non-labor, and contract costs. These are summed into a fourth column, total cost, for each variable.

Each utility used these common definitions to fill in the costs in Table TA 7.2 for each year being studied. Since the implementation costs cannot be readily allocated by fuel type, the Cost and Bill Savings Standardization Group (consisting of representatives from PG&E, Southern California Edison Company, San Diego Gas and Electric Company, Southern California Gas Company, Energy Division and the Office of Ratepayer Advocates) decided that each utility would prepare a single Table TA 7.2 for each year, covering all costs independent of fuel type.

It is necessary to acknowledge that utility accounting systems are complex and unique. Attempts were made to match costs across utilities, as allowed by the existing accounting systems, and to provide information on where and how reported costs differ.

2.3 Bill Savings

2.3.1 Energy Savings Sources

The bill savings in this report are the lifecycle net present value saved by the dwelling due to the measures installed under the LIEE programs. Historically, the first year impacts, which go into

³ Page 147, Decision 00-07-020 July 6, 2000.

the life cycle savings estimates, have been determined from measurement and evaluation impact studies performed after the program was fielded. These studies have followed the *Protocols and Procedures for the Verification of Costs, Benefits, and Shareholder Earnings from Demand-Side Management Programs (Protocols)*⁴ and are filed in the AEAP. The LIEE programs were evaluated as per Protocol Tables 8A and 8B (Residential Direct Assistance Program). For PG&E, SCE, and SDG&E, this evaluation was required only in 1995⁵. SoCalGas was required to do an impact study of the Residential Direct Assistance Program in 1996⁶. In addition, there was a statewide low-income study conducted in 1999 that collected measure level information for the top six measures. These impact studies were performed, filed, and the results verified by the Office of Ratepayer Advocates (ORA).

The statewide study estimated savings at the utility-wide level. However, SCE estimated measure savings for PY1999 and PY2000 by weather zone. As a result, for PY1999 and PY2000 SCE needed to use the results of the most recent utility evaluation, which assessed measure impact by weather zone, and not the statewide evaluation results. For PY2001 SCE used a result from a recent evaluation in PY2001 which accounted for weather zone variation but applied a single weather zone independent value. In order to assure consistency across utilities, the Cost and Bill Savings Standardization Group agreed that all utilities would use the results of the most recent utility-specific study to estimate bill savings.

It should be noted that SoCalGas estimates include the electric savings accrued by SCE that are attributable to the weatherization measures installed under the SoCalGas LIEE program. Since SoCalGas does not account for weatherization measures on electrically heated homes, the savings on these homes are attributable to air conditioning savings only. SoCalGas used SCE's ex-post per unit air conditioning kWh savings from the most recent study to represent the electric savings from the air conditioning measures.

While the SCE LIEE program also weatherizes homes, they do so only in homes that are all electric (i.e., electric space and water heat). Therefore, there is no potential for therm savings.

2.3.2 Life Cycle Bill Savings – General Formula

Three of the variables that go into any lifecycle bill savings are:

- Residential electrical rate
- Residential therm rate
- Discount rate

The general algorithm proposed for estimating bill savings is presented in Exhibit 2.1.

⁴ D.93-05-063 and revised by subsequent CPUC decisions.

⁵ Per Protocol Table 8A.

⁶ Per Protocol Table 8B.

Exhibit 2.1
Estimation of Bill Savings

$$\text{Life Cycle Bill Savings} = \sum_{m=1}^M \left[\sum_{r=1}^2 \sum_{Y=1}^{EUL_m} \sum_{CP=1}^n \text{Impact}_m * \text{Number}_m * \text{energy rate}_{Y,r,CP} * \frac{1}{(1 + \text{DiscountRate})^{Y-1}} \right]$$

where:

- r = fuel type (gas or electric)
- Y = Year, starting with implementation program year
- m = measure type
- energy rate_{Y,r} = energy rate (\$ per kWh⁷ or therm) for fuel r in year Y
- Impact_m = measure m gross⁸ impact per year (kWh or therm)
- Number_m = number of measure type m installed
- EUL_m = effective useful life⁹ (years) of measure type m
- CP = Costing period, n = number of costing periods

2.3.3 Specifics of Calculations and Variables

Measure Level Impacts

In order to comply with the ALJ’s request, the bill savings estimate for each LIEE program year was based on the measures installed in that year. However, not all utility evaluations listed above determined the impact at the measure level.

PG&E did not estimate impacts at the measure level during their evaluations, while SoCalGas and SDG&E did. In order to deliver the best estimate of per year savings, as required by the order, PG&E used the per measure findings of the SoCalGas and SDG&E studies as appropriate. These were then combined with their respective measure installation frequencies to compute program annual savings estimates.

While all utilities attempted to break out impacts by measure, there are measures (e.g., weatherization) that were reported as a group by the utility originally, evaluated as a group, and are reported as a unit in this report, rather than artificially breaking them out into individual measures.

SCE estimates its measure level impacts by weather zone for PY1999 and PY2000. As a result, the average measure level impact across the service territory varied from year-to-year as the number of measures per weather zone fluctuates.

⁷ Energy rate escalated by either 0%, 3%, or 6%.

⁸ These are defined as gross savings because they are bill savings.

⁹ EUL values are consistent with the October 25, 2000 ALJ ruling and the September 25, 2000 CALMAC Workshop Report.

Inflation and Discount Rates

The discount rate was chosen to be consistent with the ALJ Bytof ruling, dated October 25, 2000, in Application (A.) 99-09-049, et. al. The inflation rate of 3% was used to develop the discount rate.¹⁰ The following specific values were identified as appropriate for these calculations:

- The inflation rate used was 3%.
- The discount rate was 8.15%.

Development of Energy Rate Escalation

Exhibit 2.1 above is the general model for estimating the lifecycle bill savings. Originally, the Cost and Bill Savings Standardization Group thought that one of the best ways to estimate the energy rate escalation was to use values that had already been filed. As a result, the group investigated modeling energy rate escalation after the avoided cost escalation in A.99-09-049 for the Energy Efficiency Programs. However, this model was discarded after much discussion about the validity of a model that dramatically decreases rates at a time when rates are increasing. Since the aim of this method was to create bill savings that were comparable between utilities, a constant 3% escalation rate was adopted. The 3% value was chosen because it is equal to the annual inflation rate.

Estimation of the Average Annual Energy Rates

The average annual energy rates used by each utility are highly dependent upon the information available in the accounting systems of the individual utility. The prior¹¹ report documented the specific calculation approach used by each utility. Those approaches were also used to estimate the average annual energy rates presented here.

Energy rates used by each utility are shown in Exhibit 2.2.

Exhibit 2.2 Energy Rates Used for Bill Savings Calculations

Year	PG&E		SCE	SDG&E		SoCalGas	
	kWh	Therm	kWh	kWh	Therm	kWh	Therm
1999	0.1159	0.5916	0.1040	0.0902	0.5523	0.1040	0.5209
2000	0.1159	0.6537	0.1040	0.1179	0.5926	0.1040	0.6110
2001	0.1159	0.9546	0.1238	0.1174	0.7945	0.1238	0.6294
All years afterwards	Previous Year * (1+Escalation Rate)						

The therm rate for PG&E increased by 46% from PY2000 to PY2001 due to high gas rates at the beginning of the year. As shown in Exhibit 2.2, the methodology used in this report escalates the most current energy rate to forecast rates for all years beyond the most current year. The effect of

¹⁰ Conversations with Mike Wan of PG&E.

¹¹ Joint Utility Low Income Energy Efficiency Program Costs and Bill Savings Standardization Report, dated February 1, 2001, and filed with the Commission February 1, 2001 with errata filed March 5, 2001.

this is that when temporary swings occur, as probably occurred in 2001, the method can potentially estimate falsely high life cycle bill savings from therms. This appears to have happened for the bill savings from therms in this report. When the next annual bill savings report is prepared, the actual PY2002 therm rate will be used. If this rate is lower, then the life cycle bill savings from therms will self-correct.

Effective Useful Life Agreements

In order to compute life cycle savings, it is necessary to know the average life of the measures installed. All utilities compared the historic effective useful lives (EULs) being used for LIEE measures, compared these measure lives to the values developed by CALMAC, and, where possible, agreed on common EULs for common measures. EULs being used in this analysis are listed in Exhibit 23.3.

Exhibit 2.3
EULs Used in Bill Savings Calculations

Measure	EUL Used	
	year	source
Air Conditioner - Central	18	2
Air Conditioner - Room	11	8
Attic Access Weatherstripping	5	3
Attic Insulation (Ceiling Insulation)	25	2
Attic Venting	25	4
Building Envelope Repair	10	6
Caulking	5	6
Compact Fluorescent Hard Wired Porch Lights	20 ; 2	2 ; 7
Compact Fluorescent Lights	9; 6; 8	2; 2; 1
Door Shoe	5	6
Door Threshold	5	6
Door Weatherstripping	5	6
Duct Sealing and Repair	25	2
Energy Education	1	2
Evaporative Cooler (Permanent)	15	5
Evaporative Cooler (Portable)	7	2
Evaporative Cooler Covers (for Permanent)	3	5
Evaporative Cooler Maintenance	4	6
Exhaust Vent Damper (Exhaust Dampers)	3	6
Faucet Aerators	5	5
Furnace Filters	5	3
Furnace Repair	10	6
Furnace Replacement	22	5
Low Flow Showerhead	10	2
Outlet Gaskets	15	5
Refrigerator Recycling	6	2
Refrigerator Replacement	15	2
Register Seal	5	6
Set-back Thermostats	12	2
Water Heater Blanket	5	5
Water Heater Pipe Wrap	15	2
Water Heater Replacement	13	2
Weatherstripping	5	6
Whole House Fans	20	8

- ¹ PG&E's Residential Program: 2000/2001 Energy Efficiency Programs Application Attachment 12 Workpapers p. 12-13.
- ² CALMAC Workshop Report on PY 2001 Energy Efficiency Programs.
- ³ Assumed to have the same EUL as Caulking or Weatherstripping.
- ⁴ Assumed to have the same EUL as attic insulation.
- ⁵ DSM Measure Life Project, September 23, 1993 (adjusted and non-adjusted).
- ⁶ Engineering Estimate.
- ⁷ SCE installs only the lamp in this measure. Based on usage, the EUL is shorter than indoor lights and has been appropriately shortened.
- ⁸ Low Income Energy Efficiency Program Standardization Project Phase 3 Report - Appendix G. July 2001.

2.4 Consistency with AEAP

Throughout the process of creating a program costs and bill savings standardization methodology, every effort was made to keep that methodology consistent with the protocols and practices adopted for the AEAP. The methodology is consistent because:

- The report uses the same project cost tables as proposed by RRM, with slight modifications and refined definitions for each of the variables in the table.
- The modeling methodology is mathematically the same for the AEAP and this report. However, instead of estimating avoided costs, this methodology estimates life cycle bill savings.
- The discount rate and escalation factor are consistent with those used in the AEAP.
- The lifecycle bill savings used Effective Useful Life values consistent with those used in the AEAP.
- Most of the impacts used are from Protocol compliant M&E studies that are part of the AEAP.

The methodological difference is in the use of rate projections rather than avoided costs to develop bill savings.

This completes the summary of the methodology used for computing cost and bill savings. Readers wishing a more complete description of the methodology are referred to the original bill savings report.¹² The next section discusses the analysis of data for PY1999 through PY2001.

¹² Ibid

3 ANALYSIS OF PROGRAM COST AND BILL SAVING RESULTS

This section is separated into a discussion of the program variables that affect the reported bill savings and costs at an escalation rate of 3%.

3.1 Data Presented in this Report

Costs were broken down into the 18 subcategories, and the labor, non-labor and contract elements defined in Table TA 7.2 of the RRM (this table has subsequently been renamed TA 2, but is referred to by TA 7.2 throughout this document), as discussed in Section 2.2. Because each utility's accounting system is different, it was not possible for each utility to break out the costs in identical fashion. Exhibit 3.1 presents a summary of where each utility reported costs. It should be noted that the current cost breakouts are more uniform than those recorded in the previous Bill Savings report. This is attributed to the ongoing efforts for standardization for this program. Exhibit 3.1, in combination with the detailed cost tables and their footnotes presented in Exhibit 4.1 to Exhibit 4.24, creates a complete picture of the cost breakdown supplied by each utility.

Exhibit 3.1

Summary of Reported Cost Elements by Utility

	Costs Recorded by Cost Element			
	PG&E	SCE	SDG&E	SoCalGas
Energy Efficiency				
Gas Appliances	X		X	X
Electric Appliances	X	X	X	
Weatherization Measures	X	X	X	X
Outreach & Assessment	X		X	X
In Home Energy Education	X	X	X	X
Education Workshops	X	X	X	X
Pilots	X	X	X	X
Training Center	X			X
Inspections	X	X	X	X
Advertising			X	
M&E Studies	X	X		X
Regulatory Compliance	X	X	X	X
Other Administration	X		X	X
Indirect Costs	X	X	X	X
Oversight Costs				
LIAB Start-up	X	X		
LIAB PY Past Year	X	X	X	
LIAB PY Present Year	X	X	X	X
CPUC Energy Division	X	X	X	X

Based on the bill savings methodology, the program costs, life cycle bill savings, bill savings to cost ratio, and per home average life cycle bill savings were calculated by each utility for each of the three years being assessed. PY1999 was completely analyzed and reported in the previous Bill Savings Report. While the PY2000 results reported in the 2001 Bill Savings Report were

only for half of the year, the PY2000 results presented in this report cover the entire year. The PY2001 results are also for the entire year.

One might expect that the PY1999 numbers in this report should be the same as the values presented in the 2001 Bill Savings Report. However, the methodology for the life cycle bill savings uses actual energy rate data as they become available. Therefore, while the PY2001 energy rates were unknown for the analysis performed for the 2001 Bill Savings Report, the actual rates were known and used for the analysis in this report. This caused the PY1999 results to change between reports.

As an example of the magnitude of difference that this can create, when PG&E used the actual therm rate for 2001, the cost per therm went from the \$0.6733 per therm projected in the 2001 Bill Savings Report to \$0.9546 per therm shown in Exhibit 2.2. Because the methodology always uses the most current rate information for calculating the benefits, this rate replaces the earlier rate. It is then escalated using the standard escalation factors and used in the 1999 life cycle benefit analyses. The result is that the PG&E benefit per home and benefit to cost ratio rises significantly compared to the 2001 Bill Savings Report values. Another way of viewing this information is that PG&E customers receive higher per home life cycle bill savings, and the utility reports a higher benefit to cost ratio, because they have higher projected energy rates from 2001 out into the future. While all the utilities' PY2001 energy rates were updated to reflect actual 2001 energy rates, the PG&E change was the most dramatic.

3.2 Overall Results by Program Year and Utility

Decision 01-12-020, Ordering Paragraph 4, requires the utilities to present a standardized set of tables summarizing the results both by utility and across utilities. The overall analysis results are summarized by utility in Exhibit 3.2 and across utilities in Exhibit 3.3 below. These results, and discussion of the factors that explain variations, are addressed in the sections that follow these exhibits. Also, as was done in the 2001 Bill Savings Report, the results are then summarized by "utility service area".

Exhibit 3.2
Results Summary by Utility

PG&E Summary

Program Year	Program Costs	Life Cycle Bill Savings	Bill Savings / Cost Ratio	Per Home Average Life Cycle Bill Savings
1999	\$ 25,273,335	\$ 17,012,058	0.67	\$ 391
2000	\$ 25,211,145	\$ 19,017,560	0.75	\$ 581
2001	\$ 29,634,528	\$ 17,883,560	0.60	\$ 471

SCE Summary

Program Year	Program Costs	Life Cycle Bill Savings	Bill Savings / Cost Ratio	Per Home Average Life Cycle Bill Savings
1999	\$ 7,419,670	\$ 10,174,890	1.37	\$ 180
2000	\$ 7,885,542	\$ 13,602,273	1.72	\$ 294
2001	\$ 19,402,429	\$ 20,918,874	1.08	\$ 241

SDG&E Summary

Program Year	Program Costs	Life Cycle Bill Savings	Bill Savings / Cost Ratio	Per Home Average Life Cycle Bill Savings
1999	\$ 4,163,346	\$ 1,778,613	0.43	\$ 162
2000	\$ 6,414,270	\$ 3,093,416	0.48	\$ 226
2001	\$ 11,515,307	\$ 6,936,088	0.60	\$ 359

SoCalGas Summary

Program Year	Program Costs	Life Cycle Bill Savings	Bill Savings / Cost Ratio	Per Home Average Life Cycle Bill Savings
1999	\$ 16,434,199	\$ 3,094,640	0.19	\$ 113
2000	\$ 16,411,616	\$ 2,415,378	0.15	\$ 107
2001	\$ 22,596,860	\$ 3,544,209	0.16	\$ 107

Exhibit 3.3
Results Summary Across Utility

Program Costs

Program Year	PG&E	SCE	SDG&E	SoCalGas
1999	\$ 25,273,335	\$ 7,419,670	\$ 4,163,346	\$ 16,434,199
2000	\$ 25,211,145	\$ 7,885,542	\$ 6,414,270	\$ 16,411,616
2001	\$ 29,634,528	\$ 19,402,429	\$ 11,515,307	\$ 22,596,860

Life Cycle Bill Savings

Program Year	PG&E	SCE	SDG&E	SoCalGas
1999	\$ 17,012,058	\$ 10,174,890	\$ 1,778,613	\$ 3,094,640
2000	\$ 19,017,560	\$ 13,602,273	\$ 3,093,416	\$ 2,415,378
2001	\$ 17,883,560	\$ 20,918,874	\$ 6,936,088	\$ 3,544,209

Bill Savings to Cost Ratio

Program Year	PG&E	SCE	SDG&E	SoCalGas
1999	0.67	1.37	0.43	0.19
2000	0.75	1.72	0.48	0.15
2001	0.60	1.08	0.60	0.16

Per Home Life Cycle Bill Savings

Program Year	PG&E	SCE	SDG&E	SoCalGas
1999	\$ 391	\$ 180	\$ 162	\$ 113
2000	\$ 581	\$ 294	\$ 226	\$ 107
2001	\$ 471	\$ 241	\$ 359	\$ 107

The number of homes treated each year (Exhibit 3.4) helps explain some of the values in Exhibit 3.2 and Exhibit 3.3.

Exhibit 3.4
Number of Homes Treated by Year by Utility

Program Year	PG&E	SCE	SDG&E	SoCalGas
1999	43,480	56,534	10,993	27,495
2000	32,730	46,341	13,660	22,617
2001	37,935	86,903	19,315	33,046

Exhibit 3.4 illustrates that even though PG&E has the largest service territory, SCE delivers the program to more homes annually. Exhibit 3.3 shows that SCE also has a higher bill savings to cost ratio. This appears to be due to the fact that, while SCE encompasses a spectrum of measures, the majority of their LIEE program savings are due to the relamping and refrigerator measures. These measures are less manpower intensive (and therefore less costly) than weatherization measures, which are a big part of PG&E's program. Thus, the program measure mix affects both the cost of the SCE program and the actual number of homes it can reach with that measure mix.

A discussion of the year-to-year differences for each utility will be presented first, followed by an analysis and discussion of the differences seen across utilities.

3.2.1 Year-to-Year Differences by Utility

Exhibit 3.2 supplies a summary of the analysis results, by utility, from 1999 through 2001. The increased program costs for PY2001 across all utilities are due to the influx of SBX 5 dollars starting in the second quarter of 2001. The trends shown in Exhibit 3.2 are explained in the following utility-by-utility discussion. Detailed explanations are based on line-by-line examination of Exhibit 4.1 through Exhibit 4.24. Readers wishing to review the accuracy of the conclusions may wish to refer to the cost or bill savings exhibit for the appropriate year, which are presented in Section 4.

PG&E – It should be noted that for the PY1999 program PG&E bundled the weatherization measures that were separated in subsequent years. Each bundled weatherization measure installed had an effective useful life of 20 years, and a per unit measure impact that differs from the individual measures. As such, one cannot closely compare PG&E's PY1999 with the other two years and reach firm conclusions.

While there were similar costs between PY1999 and PY2000, PG&E's life cycle bill savings increased substantially for PY2000. This was largely due to two factors. There were a large number of compact fluorescent lamps (CFLs) installed in the PY2000 program (~ 158,000 in PY2000 with an unknown number in PY1999 due to measure bundling). This measure has a relatively large savings and it increased the total bill savings over the PY1999 program. Secondly, PG&E took over the LIEE Program Administrator role during the middle of PY2000, causing some program delivery slow downs. Consequently, there were fewer homes served in PY2000 (see Exhibit 3.4), leading to the larger total bill savings being averaged out over fewer homes, and a subsequently larger per home bill savings value.

For PG&E, the PY2001 program's bill savings per household are lower than the PY2000 program by about 19%. PG&E increased the homes served in 2001 over the PY2000 program. The lower bill savings are due to the number of measures installed across the program and the associated measure specific impacts. PG&E's PY2001 program had lower installation rates than the PY2000 program for many of the measures including CFLs, low flow showerheads, building envelope repair for single family homes, and attic insulation. Approximately 1% of the PG&E bill savings for PY2001 were attributable to the rapid deployment measures (Exhibit 4.15).

SCE – Similar to PG&E, SCE's costs were comparable in PY1999 and PY2000, but the life cycle bill savings increased substantially for PY2000. This was mainly due to the same two elements encountered for PG&E, higher installation rates for certain measures and a lower number of homes serviced. SCE had higher installation rates for refrigerators and porch lights in the PY2000 program. These measures have large savings and increased the total bill savings for the PY 2000 program compared to the PY1999 program. Secondly, there were fewer homes served in PY2000, leading to the larger total bill savings being averaged out over fewer homes, and a subsequently larger per home bill savings value.

For PY2001, besides having the rapid deployment measures added, SCE also moved the refrigerator recycling program from its own energy efficiency program into the LIEE program.

This added a substantial program cost, but had no bill savings impacts associated with it.¹³ Additionally, SCE doubled the installation rate of refrigerators in PY2001 (6% in PY2000 versus 13% in PY2001), but dramatically decreased the per-unit impact (1,307 kWh in PY2000 versus 542 kWh in PY2001) due to an impact study becoming available in 2000.¹⁴ This resulted in the increased installation rate not showing in the bill savings.

SCE's PY2001 program reached substantially more homes than previous years. However, the measure installation rates were similar for PY2000 and PY2001, with the exception of refrigerators. If the refrigerator recycling measure is removed from the estimates, the life cycle bill savings per home value is very similar to the PY2000 program results. The rapid deployment measures represented about 11% of the total bill savings for SCE (Exhibit 4.18).

SDG&E – For SDG&E the differences between the PY1999 and PY2000 programs are due mainly to higher installation rates for CFLs, low flow showerheads, and refrigerators in PY2000 as compared to PY1999. The PY2001 program showed substantially higher per home life cycle savings than in previous years. This was due to a much higher refrigerator installation rate in PY2001 over either previous years (28% installation rate in PY2001 versus 5% in PY2000 and 2% in PY1999). This is a high impact measure and increases the average bill savings across all households.

SoCalGas – The SoCalGas program has been so similar across the three years that the life cycle bill savings per home served varies only by a small amount. While there was a decrease in the rate of attic insulation installations in PY2001, other measures such as low flow showerheads were installed at higher rates, resulting in constant per home savings. The per home savings for each year include a small amount of savings attributed to the air conditioning electric energy savings¹⁵ resulting from weatherization installed by SoCalGas. Since both SoCalGas and SCE claims are based on installations, there is no overlap between this impact and savings claimed by SCE.

3.2.2 Year-to-Year Differences Across Service Area

This section analyzes trends between the utilities by year. In order to compare average customer bill savings across the state, it is useful to compare the total service by service area. For the purposes of this document, the SCE and SoCalGas programs were assessed as a single entity since they serve roughly the same customers.¹⁶ Exhibit 3.5 presents the overall bill savings to cost ratios and per home life cycle bill savings values for each of the three “service areas”, along with the individual values for SCE and SoCalGas.

¹³ The number indicated for this measure include the refrigerators that are taken from the LIEE homes and recycled by SCE. All refrigerators replaced are not recycled by SCE. The bill savings are seen in the refrigerator replacement measure.

¹⁴ First Year Impact Study of 1998 Low Income Energy Efficiency Programs. Kenneth Parris. April 2000.

¹⁵ SoCalGas uses the SCE electric savings values from SCE's 1997 study, along with SCE electric rates, to calculate electric bill savings.

¹⁶ This is the same assessment protocol as was followed in the 2001 Bill Savings Report.

Exhibit 3.5
Analysis by Service Area, Combined SCE and SoCalGas

Bill Savings to Cost Ratio

Program Year	PG&E	SDG&E	Combined SCE and SoCalGas	SCE	SoCalGas
1999	0.67	0.43	0.56	1.37	0.19
2000	0.75	0.48	0.66	1.72	0.15
2001	0.60	0.60	0.58	1.08	0.16

Per Home Life Cycle Bill Savings

Program Year	PG&E	SDG&E	Combined SCE and SoCalGas	SCE	SoCalGas
1999	\$ 391	\$ 162	\$ 293	\$ 180	\$ 113
2000	\$ 581	\$ 226	\$ 400	\$ 294	\$ 107
2001	\$ 471	\$ 359	\$ 348	\$ 241	\$ 107

Exhibit 3.6 and Exhibit 3.7 present plots of the values shown in Exhibit 3.5.

Exhibit 3.6
Graph of Bill Savings to Cost Ratio by Service Area

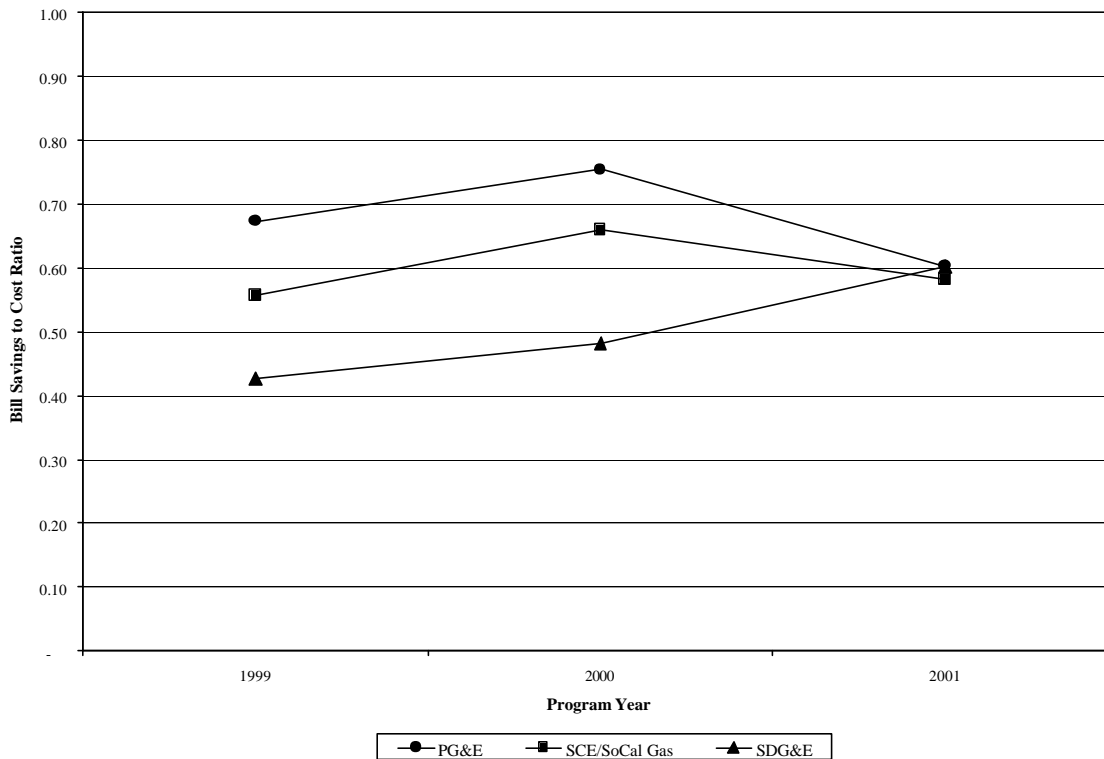


Exhibit 3.7
Graph of Bill Savings per Home by Service Area

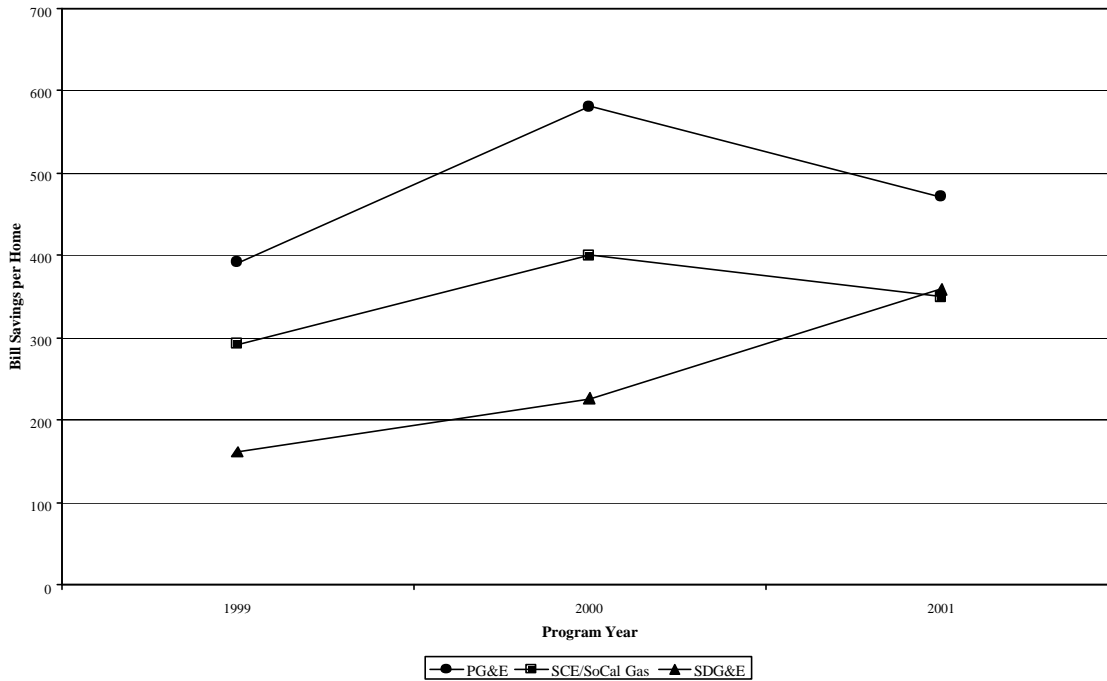


Exhibit 3.6 and Exhibit 3.7 indicate more significant differences between utility program delivery than were reported in the 2001 Bill Savings Report. In an attempt to identify the reasons for the differences shown above, the costs and benefits presented in Exhibit 4.1 through Exhibit 4.24 were studied in detail, on a program year by program year basis. The following conclusions were drawn.

Program Year 1999

Because PY1999 was fully analyzed in the 2001 Bill Savings Report, no other comment on the differences between the utilities is presented here.

Program Year 2000

In reviewing the detailed measure installation rate information for PY2000 for each utility, it became apparent that the CFL, refrigerator replacement and low flow shower head installation rates played a major role in the total savings reported and the savings per home. The statistics summarized in Exhibit 3.8 were shown to be important factors in the bill savings to cost ratios and the bill savings per home differences for PY2000.

**Exhibit 3.8
Critical Installation Rates for PY2000**

	PG&E (Units/Home)	SCE/SoCalGas (Units/Home)	SDG&E (Units/Home)
CFLs	4.8	3.1	3.6
Refrigerator Replacement	0.13	0.06	0.05
Low Flow Shower Heads	0.90	0.79	0.57

To demonstrate that these values were the primary controlling factors, the bill savings estimates for PG&E and SDG&E were recalculated using the installation rates listed for the combined SCE/SoCalGas entity.¹⁷ The PG&E PY2000 therm energy savings rate of 16.4 therms per showerhead and the SDG&E PY2000 therm energy savings rate of 7.2 therms per showerhead were also changed to the SoCalGas PY2000 therm energy savings rate of 9.0 therms per showerhead. Additionally, the SCE refrigeration energy savings estimate was dropped from 1,304 kWh per refrigerator to 542 kWh per refrigerator. This 542 kWh value is used for PG&E in PY2000 and both PG&E and SCE in PY2001.

When these changes were made, the following comparison of bill savings to cost ratio and bill savings per home values evolved.

**Exhibit 3.9
Modified PY2000 Savings Estimates**

	PG&E	SCE/SoCalGas	SDG&E
Bill Saving to Cost Ratio*	0.53	0.55	0.68
Bill Saving per Home*	\$406	\$345	\$321

* Modified savings estimate are in **Bold**

These comparisons demonstrate that the primary differences in the PY 2000 bill savings to cost ratios and bill savings per home are from disparities in the installation and energy rates for these three measures.

PY2001

A review of the PY2001 installation data for the four utilities (Exhibit 4.15, Exhibit 4.18, Exhibit 4.21, and Exhibit 4.24) shows that the two main elements controlling savings in PY2001 are CFLs (as in PY2000) and refrigerator replacements. Exhibit 3.10 summarizes the PY2001 installation rates for CFLs and refrigerator replacement by utility service area. As can be seen, significant differences exist in the CFL installation rates, reflecting rates similar to those seen in PY2000. However, in addition, SDG&E has fielded an aggressive refrigerator replacement

¹⁷ It should be pointed out that while the CFL installation rates were reduced in the demonstration calculation, the base information did not allow the backing out of the costs associated with the removal of these measures. As a result, the calculation does not properly calculate the true benefit cost ratio, but is illustrative only.

program, with the result that it went from the lowest per home refrigerator replacement rate to a rate that is close to double the other utilities in PY2001.

Exhibit 3.10
Critical Installation Rates for PY2001

	PG&E (Units/Home)	SCE/SoCalGas (Units/Home)	SDG&E (Units/Home)
CFLs	4.5	3.2	1.9
Refrigerator Replacement	0.15	0.13	0.28

Since refrigerators contribute large per unit savings, this measure made major contributions to the program savings, resulting in SDG&E average per home savings estimates rising to the same level as the other two service areas.

To demonstrate that the high PY2001 PG&E bill savings were due to the higher CFL installation rates, the PG&E bill savings estimates were recalculated using the SCE/SoCalGas PY2001 CFL installation rates.¹⁸ Exhibit 3.11 shows that when this is done, the bill savings to cost ratio and bill savings per home end up in the same range for all three service areas.

Exhibit 3.11
Modified PY2001 Savings Estimates

	PG&E	SCE/SoCalGas	SDG&E
Bill Saving to Cost Ratio	0.53*	.57	0.60
Bill Saving per Home	\$413*	348	359

* Modified savings estimate are in **Bold**, unmodified are not bold

All of this having been said, the PY2001 bill savings per home and bill savings to cost ratios are the most relevant values to consider when assessing program effectiveness. This is because of the ongoing effort by the standardization team for LIEE. These results show programs that are comparable in terms of bill savings to cost ratio and bill savings per home when adjusted for high levels of CFL installation by one utility.

3.3 Overall Comment on Bill Savings Comparisons

During the three year period from 1999 to 2001, the three electric utilities have been steadily increasing the rate at which refrigerators are installed. SoCalGas has been increasing their installation rate of low-flow showerheads, faucet aerators, and outlet gaskets.

It should be noted that due to the methodology used for forecasting energy rates, significant single year changes in energy rates can cause substantial perturbations in the life cycle bill savings. This phenomenon is seen in this report, resulting from PG&E having a higher PY2001

¹⁸ It should be pointed out that while the CFL installation rates were reduced in the demonstration calculation, the base information did not allow the backing out of the costs associated with the removal of these measures. As a result, the calculation does not properly calculate the true benefit cost ratio, but is illustrative only.

therm rate than the other two gas utilities. In future reports the bill savings estimates will self-correct as the PY2001 energy rates are replaced by energy rates for subsequent years.

The standardization efforts covering the four utilities during this three year period appear to be bringing the bill savings to cost ratio and bill savings per home served closer together. Although the same measures are offered across the state, the primary controlling factor in per home savings is the installation rates of the measures. However, if installation rate differences are accounted for, the LIEE programs appear to be offering similar programs statewide.

4 DETAILED TABLES

4.1 Program Costs

This section contains the detailed program costs for each utility and each program year.

Exhibit 4.1

PG&E Table TA 7.2 – Program Year 1999 Last Updated 1/25/01 11:00 AM

	Costs Recorded by Cost Element - 1999			
	Labor	Non-Labor	Contract	Total
Energy Efficiency				
Gas Appliances	\$ -	\$ -	\$ 86,828	\$ 86,828
Electric Appliances	\$ -	\$ -	\$ 1,560,000	\$ 1,560,000
Weatherization Measures	\$ -	\$ -	\$ 16,943,512	\$ 16,943,512
Outreach & Assessment	\$ -	\$ -	\$ -	\$ -
In Home Energy Education	\$ -	\$ -	\$ -	\$ -
Education Workshops	\$ -	\$ -	\$ -	\$ -
<i>Energy Efficiency TOTAL</i>	\$ 864,274	\$ 298,430	\$ 18,590,340	\$ 19,753,044
Pilots				
Attic Venting	\$ 10,421	\$ 11,632	\$ 11,868	\$ 33,921
Pilot B	\$ -	\$ -	\$ -	\$ -
<i>Total Pilots</i>	\$ 10,421	\$ 11,632	\$ 11,868	\$ 33,921
Training Center	\$ 56,134	\$ -	\$ -	\$ 56,134
Inspections	\$ 1,272,447	\$ 27,007	\$ 2,185,526	\$ 3,484,980
Advertising	\$ -	\$ -	\$ -	\$ -
M&E Studies	\$ -	\$ -	\$ -	\$ -
Regulatory Compliance	\$ 89,000	\$ -	\$ -	\$ 89,000
Other Administration	\$ -	\$ -	\$ -	\$ -
Indirect Costs ¹	\$ 665,374	\$ 6,594	\$ 1,088,324	\$ 1,760,292
Oversight Costs				
LIAB Start-up	\$ -	\$ -	\$ -	\$ -
LIAB PY Past Year ²	\$ -	\$ -	\$ 40,964	\$ 40,964
LIAB PY Present Year ³	\$ -	\$ -	\$ 55,000	\$ 55,000
CPUC Energy Division	\$ -	\$ -	\$ -	\$ -
<i>Total Oversight Costs</i>	\$ -	\$ -	\$ 95,964	\$ 95,964
Total Costs	\$ 2,957,650	\$ 343,663	\$ 21,972,022	\$ 25,273,335

Notes:

- 1 Indirect costs include Combustible Appliances Safety Testing, which is not part of the LIEE budget.
- 2 LIAB 1997 & 1998 amortization.
- 3 LIAB 1999 operating cost.

Exhibit 4.2

PG&E Table TA 7.2 – Program Year 2000 Last Updated 4/24/02

	Costs Recorded by Cost Element - 2000			
	Labor	Non-Labor	Contract	Total
Energy Efficiency				
Gas Appliances	\$ (29,607)	\$ 2,379	\$ 199,295	\$ 172,067
Electric Appliances	\$ 66,550	\$ 980	\$ 4,646,051	\$ 4,713,581
Weatherization Measures	\$ 150,812	\$ 19,533	\$ 10,270,964	\$ 10,441,309
Outreach & Assessment	\$ -	\$ -	\$ 685,515	\$ 685,515
In Home Energy Education	\$ 148,761	\$ 155,611	\$ 1,602,762	\$ 1,907,135
Education Workshops	\$ 14,212	\$ 15,083	\$ 60,764	\$ 90,059
<i>Energy Efficiency TOTAL</i>	\$ 350,728	\$ 193,586	\$ 17,465,352	\$ 18,009,666
Pilots				
Attic Venting	\$ 4,297	\$ 2,945	\$ 125,493	\$ 132,735
Pilot C	\$ -	\$ -	\$ -	\$ -
<i>Total Pilots</i>	\$ 4,297	\$ 2,945	\$ 125,493	\$ 132,735
Training Center	\$ 72,072	\$ 40,810	\$ 79,810	\$ 192,692
Inspections	\$ 609,174	\$ 421,674	\$ 1,405,034	\$ 2,435,882
Advertising	\$ -	\$ -	\$ -	\$ -
M&E Studies	\$ 12,818	\$ 12,884	\$ 17,878	\$ 43,580
Regulatory Compliance	\$ 129,345	\$ 101,516	\$ 31,108	\$ 261,969
Other Administration	\$ 779,800	\$ 490,583	\$ 1,078,649	\$ 2,349,032
Indirect Costs ¹	\$ 326,133	\$ 273,016	\$ 1,108,294	\$ 1,707,443
Oversight Costs				
LIAB Start-up	\$ -	\$ -	\$ 3,018	\$ 3,018
LIAB PY Past Year	\$ -	\$ -	\$ 27,533	\$ 27,533
LIAB PY Present Year	\$ -	\$ -	\$ 4,555	\$ 4,555
CPUC Energy Division	\$ -	\$ -	\$ 43,039	\$ -
<i>Total Oversight Costs</i>	\$ -	\$ -	\$ 78,145	\$ 78,145
Total Costs²	\$ 2,284,367	\$ 1,537,015	\$ 21,389,762	\$ 25,211,145

Notes:

1 Indirect costs include Combustable Appliances Safety Testing, which is not part of the LIEE budget.

Exhibit 4.3

PG&E Table TA 7.2 – Program Year 2001 Last Updated 4/18/02

	Costs Recorded by Cost Element - 2001			
	Labor	Non-Labor	Contract	Total
Energy Efficiency				
Gas Appliances	\$ -	\$ 18,148	\$ 713,718	\$ 731,866
Electric Appliances	\$ -	\$ 52,836	\$ 5,650,304	\$ 5,703,140
Weatherization Measures	\$ -	\$ 92,482	\$ 9,900,486	\$ 9,992,968
Outreach & Assessment	\$ 1,488	\$ 46,470	\$ 1,219,258	\$ 1,267,216
In Home Energy Education	\$ 292,012	\$ 475,822	\$ 1,343,285	\$ 2,111,119
Education Workshops	\$ 23,974	\$ 35,863	\$ 14,055	\$ 73,892
<i>Energy Efficiency TOTAL</i>	\$ 317,474	\$ 721,621	\$ 18,841,107	\$ 19,880,202
Pilots				
Attic Venting	\$ 4,147	\$ 5,187	\$ 388	\$ 9,722
Landlord Rebates	\$ 5,690	\$ 7,892	\$ 194	\$ 13,775
<i>Total Pilots</i>	\$ 9,837	\$ 13,079	\$ 582	\$ 23,497
Training Center	\$ 66,953	\$ 108,651	\$ 62,020	\$ 237,624
Inspections	\$ 460,954	\$ 647,330	\$ 2,144,039	\$ 3,252,323
Advertising	\$ -	\$ -	\$ -	\$ -
M&E Studies ¹	\$ 16,709	\$ 29,918	\$ 186,105	\$ 232,732
Regulatory Compliance ²	\$ 171,600	\$ 150,116	\$ 238,837	\$ 560,553
Other Administration ³	\$ 615,866	\$ 809,547	\$ 2,530,390	\$ 3,955,803
Indirect Costs ⁴	\$ 82,566	\$ 1,024,683	\$ 339,324	\$ 1,446,573
Oversight Costs			\$ -	
LIAB Start-up	\$ -	\$ -	\$ -	\$ -
LIAB PY Past Year	\$ -	\$ -	\$ -	\$ -
LIAB PY Present Year	\$ -	\$ -	\$ -	\$ -
CPUC Energy Division	\$ -	\$ -	\$ 45,221	\$ 45,221
<i>Total Oversight Costs</i>	\$ -	\$ -	\$ 45,221	\$ 45,221
Total Costs ⁵	\$ 1,741,959	\$ 3,504,945	\$ 24,387,624	\$ 29,634,528

Notes:

- 1 M&E studies include: Customer Bill of Right, Pay for Measures, Bill Savings, and Cost Effectiveness Testing.
- 2 Regulatory Compliance includes LIEE Standardization, RRM Working Group Report, CBO Access and Leveraging Report, and Monthly CPUC Reports.
- 3 Includes PG&E's program management only. Prime contractor's management is included in the weatherization costs.
- 4 Indirect costs include Combustible Appliances Safety Testing, which is not part of the LIEE budget.
- 5 Total costs include CAS Testing, which is not part of the LIEE budget.

Exhibit 4.4

SCE Table TA 7.2 – Program Year 1999 Last Updated 1/25/01 11:00 AM

	Costs Recorded by Cost Element - 1999			
	Labor	Non-Labor	Contract	Total
Energy Efficiency				
- Gas Appliances	\$ -	\$ -	\$ -	\$ -
- Electric Appliances	\$ 108,877	\$ 55,202	\$ 1,933,862	\$ 2,097,941
- Weatherization	\$ 176,091	\$ 43,173	\$ 3,983,615	\$ 4,202,879
- Outreach & Assessment	\$ -	\$ -	\$ -	\$ -
- In Home Energy Education	\$ 12,356	\$ 59,646	\$ 740,667	\$ 812,670
- Education Workshop	\$ -	\$ -	\$ -	\$ -
<i>Energy Efficiency TOTAL</i>	\$ 297,324	\$ 158,021	\$ 6,658,144	\$ 7,113,490
Pilots				
- Pilot (A)	\$ -	\$ -	\$ -	\$ -
- Pilot (B)	\$ -	\$ -	\$ -	\$ -
<i>Total Pilots</i>	\$ -	\$ -	\$ -	\$ -
Training Center	\$ -	\$ -	\$ -	\$ -
Inspections	\$ 29,881	\$ 13,033	\$ 11,252	\$ 54,166
Advertising	\$ -	\$ -	\$ -	\$ -
M&E Studies ¹	\$ -	\$ -	\$ -	\$ -
Regulatory Compliance ¹	\$ -	\$ -	\$ -	\$ -
Other Administration ¹	\$ -	\$ -	\$ -	\$ -
Indirect Costs	\$ 176,300	\$ -	\$ -	\$ 176,300
Oversight Costs				
- LIAB Start-up	\$ -	\$ -	\$ 136	\$ 136
- LIAB PY Past Year	\$ -	\$ -	\$ 20,766	\$ 20,766
- LIAB PY Present Year	\$ -	\$ -	\$ 54,812	\$ 54,812
CPUC Energy Division	\$ -	\$ -	\$ -	\$ -
<i>Total Oversight Costs</i>	\$ -	\$ -	\$ 75,714	\$ 75,714
Total Costs	\$ 503,506	\$ 171,054	\$ 6,745,111	\$ 7,419,670

¹ These costs not included within SCE's LIEE budget. They were included within departmental budgets outside of LIEE.

Exhibit 4.5

SCE Table TA 7.2 – Program Year 2000 Last Updated 4/10/02

	Costs Recorded by Cost Element - 2000			
	Labor	Non-Labor	Contract	Total
Energy Efficiency				
- Gas Appliances	\$ -	\$ -	\$ -	\$ -
- Electric Appliances	\$ 87,001	\$ 36,633	\$ 3,329,945	\$ 3,453,579
- Weatherization	\$ 155,813	\$ 121,130	\$ 3,146,705	\$ 3,423,648
- Outreach & Assessment	\$ -	\$ -	\$ -	\$ -
- In Home Energy Education	\$ 11,289	\$ 91,326	\$ 506,202	\$ 608,817
- Education Workshop	\$ -	\$ -	\$ -	\$ -
<i>Energy Efficiency TOTAL</i>	\$ 254,103	\$ 249,089	\$ 6,982,853	\$ 7,486,045
Pilots				
- Pilot (A)	\$ -	\$ -	\$ -	\$ -
- Pilot (B)	\$ -	\$ -	\$ -	\$ -
<i>Total Pilots</i>	\$ -	\$ -	\$ -	\$ -
Training Center	\$ -	\$ -	\$ -	\$ -
Inspections	\$ 45,425	\$ 4,143	\$ 32,826	\$ 82,394
Advertising	\$ -	\$ -	\$ -	\$ -
M&E Studies	\$ 13,000	\$ -	\$ -	\$ 13,000
Regulatory Compliance	\$ 125,000	\$ -	\$ -	\$ 125,000
Other Administration ¹	\$ -	\$ -	\$ -	\$ -
Indirect Costs	\$ 167,736	\$ -	\$ -	\$ 167,736
Oversight Costs				
- LIAB Start-up	\$ -	\$ -	\$ -	\$ -
- LIAB PY Past Year	\$ -	\$ -	\$ 314	\$ 314
- LIAB PY Present Year	\$ -	\$ -	\$ 8,917	\$ 8,917
CPUC Energy Division	\$ -	\$ -	\$ 2,137	\$ 2,137
<i>Total Oversight Costs</i>	\$ -	\$ -	\$ 11,368	\$ 11,368
Total Costs	\$ 605,264	\$ 253,232	\$ 7,027,046	\$ 7,885,542

¹ These costs not included within SCE's LIEE budget. They were included within departmental budgets outside of LIEE.

Exhibit 4.6

SCE Table TA 7.2 – Program Year 2001 Last Updated 4/24/02

	Costs Recorded by Cost Element - 2001			
	Labor	Non-Labor	Contract	Total
Energy Efficiency				
- Gas Appliances	\$ -	\$ -	\$ -	\$ -
- Electric Appliances ¹	\$ 319,849	\$ 417,652	\$ 15,440,280	\$ 16,177,781
- Weatherization	\$ 80,695	\$ 39,307	\$ 323,130	\$ 443,132
- Outreach & Assessment	\$ -	\$ -	\$ 166,494	\$ 166,494
- In Home Energy Education	\$ 4,880	\$ 429,074	\$ 1,302,022	\$ 1,735,976
- Education Workshop	\$ -	\$ 14,206	\$ -	\$ 14,206
<i>Energy Efficiency TOTAL</i>	\$ 405,424	\$ 900,239	\$ 17,231,926	\$ 18,537,589
Pilots				
- Pilot (A)	\$ -	\$ -	\$ -	\$ -
- Pilot (B)	\$ 11,338	\$ 734	\$ 398,457	\$ 410,529
<i>Total Pilots</i>	\$ 11,338	\$ 734	\$ 398,457	\$ 410,529
Training Center	\$ -	\$ -	\$ -	\$ -
Inspections	\$ -	\$ -	\$ 103,523	\$ 103,523
Advertising	\$ -	\$ -	\$ -	\$ -
M&E Studies	\$ 25,000	\$ -	\$ -	\$ 25,000
Regulatory Compliance	\$ 65,000	\$ -	\$ -	\$ 65,000
Other Administration	\$ -	\$ -	\$ -	\$ -
Indirect Costs ²	\$ -	\$ 222,645	\$ -	\$ 222,645
Oversight Costs				
- LIAB Start-up	\$ -	\$ -	\$ -	\$ -
- LIAB PY Past Year	\$ -	\$ -	\$ -	\$ -
- LIAB PY Present Year	\$ -	\$ -	\$ -	\$ -
CPUC Energy Division	\$ -	\$ 38,143	\$ -	\$ 38,143
<i>Total Oversight Costs</i>	\$ -	\$ 38,143	\$ -	\$ 38,143
Total Costs	\$ 506,762	\$ 1,161,761	\$ 17,733,906	\$ 19,402,429

1 Devices cost associated with 2001 installations are included (AEAP filing)

2 Program costs that are not part of the LIEE budget

Exhibit 4.7

SDG&E Table TA 7.2 – Program Year 1999 Last Updated 1/24/01 Noon

	Costs Recorded by Cost Element - 1999			
	Labor	Non-Labor	Contract	TOTAL
Energy Efficiency				
- Gas Appliances	\$ 19,224	\$ 8,009	\$ 344,109	\$ 371,341
- Electric Appliances	\$ -	\$ -	\$ 122,986	\$ 122,986
- Weatherization Measures	\$ 115,341	\$ 48,051	\$ 2,514,950	\$ 2,678,343
- Outreach Assessment/In Home Energy Education	\$ 19,224	\$ 8,009	\$ 502,886	\$ 530,118
- Education Workshops	\$ -	\$ -	\$ -	\$ -
<i>Energy Efficiency TOTAL</i>	\$ 153,788	\$ 64,069	\$ 3,484,932	\$ 3,702,788
Pilots				
- Pilot (A)	\$ -	\$ -	\$ -	\$ -
- Pilot (B)	\$ -	\$ -	\$ -	\$ -
<i>Total Pilots</i>	\$ -	\$ -	\$ -	\$ -
Training Center	\$ -	\$ -	\$ -	\$ -
Inspections	\$ 230,682	\$ 96,103	\$ -	\$ 326,785
Advertising	\$ 7,689	\$ 3,203	\$ -	\$ 10,893
M&E Studies	\$ -	\$ -	\$ -	\$ -
Regulatory Compliance	\$ 38,447	\$ 16,017	\$ -	\$ 54,464
Other Administration	\$ -	\$ -	\$ -	\$ -
Indirect Costs	\$ 11,534	\$ 4,805	\$ -	\$ 16,339
Oversight Costs				
- LIAB Start-Up	\$ -	\$ -	\$ -	\$ -
- LIAB PY Past Year	\$ -	\$ -	\$ 38,948	\$ 38,948
- LIAB PY Present Year	\$ -	\$ -	\$ 13,128	\$ 13,128
- CPUC Energy Division	\$ -	\$ -	\$ -	\$ -
<i>Total Oversight Costs</i>	\$ -	\$ -	\$ 52,076	\$ 52,076
Total Costs	\$ 442,141	\$ 184,197	\$ 3,537,008	\$ 4,163,346

Exhibit 4.8

SDG&E Table TA 7.2 – Program Year 2000 Last Updated 4/10/02

	Costs Recorded by Cost Element - 2000			
	Labor	Non-Labor	Contract	TOTAL
Energy Efficiency				
- Gas Appliances	\$ 9,124	\$ 6,954	\$ 601,748	\$ 617,826
- Electric Appliances	\$ 19,677	\$ 9,583	\$ 915,546	\$ 944,806
- Weatherization Measures	\$ 188,191	\$ 140,697	\$ 3,220,409	\$ 3,549,298
- Outreach Assessment/In Home Energy Education	\$ 4,562	\$ 3,477	\$ 676,884	\$ 684,923
- Education Workshops	\$ 15,452	\$ 7,059	\$ 181,178	\$ 203,690
<i>Energy Efficiency TOTAL</i>	\$ 237,008	\$ 167,771	\$ 5,595,765	\$ 6,000,543
Pilots				
- Pilot (A)	\$ -	\$ -	\$ 1,277	\$ 1,277
- Pilot (B)	\$ -	\$ -	\$ -	\$ -
<i>Total Pilots</i>	\$ -	\$ -	\$ 1,277	\$ 1,277
Training Center	\$ -	\$ -	\$ -	\$ -
Inspections	\$ 189,268	\$ 40,748	\$ 15,961	\$ 245,978
Advertising	\$ -	\$ -	\$ -	\$ -
M&E Studies	\$ -	\$ -	\$ -	\$ -
Regulatory Compliance	\$ -	\$ -	\$ -	\$ -
Other Administration	\$ 18,951	\$ 24,662	\$ 68,901	\$ 112,513
Indirect Costs		\$ -	\$ -	\$ -
Oversight Costs				
- LIAB Start-Up	\$ -	\$ -	\$ -	\$ -
- LIAB PY Past Year	\$ -	\$ -	\$ -	\$ -
- LIAB PY Present Year	\$ -	\$ -	\$ 37,566	\$ 37,566
- CPUC Energy Division	\$ -	\$ -	\$ 16,393	\$ 16,393
<i>Total Oversight Costs</i>				\$ 53,958
Total Costs	\$ 445,227	\$ 233,181	\$ 5,735,863	\$ 6,414,270

Exhibit 4.9

SDG&E Table TA 7.2 – Program Year 2001 Last Updated 4/10/02

	Costs Recorded by Cost Element - 2001			
	Labor	Non-Labor	Contract	TOTAL
Energy Efficiency				
- Gas Appliances	\$ 9,998	\$ 12,859	\$ 1,017,848	\$ 1,040,704
- Electric Appliances	\$ 2,199	\$ 27,783	\$ 4,563,897	\$ 4,593,879
- Weatherization Measures	\$ 114,837	\$ 207,635	\$ 3,478,746	\$ 3,801,217
- Outreach Assessment	\$ -	\$ 4,251	\$ 212,716	\$ 216,967
- In Home Energy Education	\$ 18,398	\$ 41,019	\$ 749,329	\$ 808,746
- Education Workshops	\$ 12,524	\$ 9,465	\$ 260,547	\$ 282,536
<i>Energy Efficiency TOTAL</i>	\$ 157,956	\$ 303,012	\$ 10,283,083	\$ 10,744,050
Pilots				
- Pilot (A)	\$ -	\$ -	\$ -	\$ -
- Pilot (B)	\$ -	\$ -	\$ -	\$ -
<i>Total Pilots</i>	\$ -	\$ -	\$ -	\$ -
Training Center	\$ -	\$ -	\$ -	\$ -
Inspections	\$ 71,625	\$ 75,738	\$ 257,412	\$ 404,775
Advertising	\$ -	\$ -	\$ -	\$ -
M&E Studies	\$ -	\$ -	\$ -	\$ -
Regulatory Compliance	\$ 126,456	\$ 107,387	\$ 116,092	\$ 349,936
Other Administration	\$ -	\$ -	\$ -	\$ -
Indirect Costs	\$ -	\$ -	\$ -	\$ -
Oversight Costs				
- LIAB Start-Up	\$ -	\$ -	\$ -	\$ -
- LIAB PY Past Year	\$ -	\$ -	\$ -	\$ -
- LIAB PY Present Year	\$ -	\$ 162	\$ -	\$ 162
- CPUC Energy Division	\$ -	\$ 16,385	\$ -	\$ 16,385
<i>Total Oversight Costs</i>	\$ -	\$ 16,547	\$ -	\$ 16,547
Total Costs	\$ 356,038	\$ 502,684	\$ 10,656,586	\$ 11,515,307

Exhibit 4.10

SoCalGas Table TA 7.2 – Program Year 1999 Last Updated 5/23/02

	Costs Recorded by Cost Element - 1999			
	Labor	Non-Labor	Contract	Total
Energy Efficiency				
Gas Appliances	\$ 79,895	\$ 7,552	\$ 3,167,396	\$ 3,254,843
Weatherization Measures	\$ 639,766	\$ 8,177	\$ 10,375,856	\$ 11,023,799
Outreach & Assessment / In Home Energy Education	\$ -	\$ 3,912	\$ 183,165	\$ 187,077
Education Workshops	\$ -	\$ 9,265	\$ 491,316	\$ 500,581
<i>Energy Efficiency TOTAL</i>	\$ 719,661	\$ 28,906	\$ 14,217,733	\$ 14,966,300
<i>Outreach Pilot</i>	\$ -	\$ -	\$ (531)	\$ (531)
Total Pilots			\$ (531)	\$ (531)
Training Center	\$ 156,428	\$ 21,131	\$ -	\$ 177,559
Inspections	\$ 120,000	\$ 772	\$ 590,381	\$ 711,153
Advertising	\$ -	\$ -	\$ -	\$ -
M&E Studies	\$ -	\$ -	\$ -	\$ -
Regulatory Compliance ¹	\$ 65,000	\$ -	\$ -	\$ 65,000
Other Administration ²	\$ -	\$ 92,462	\$ 21,711	\$ 114,173
Indirect Costs ³	\$ -	\$ 400,545		\$ 400,545
Oversight Costs				
LIAB Start-up	\$ -	\$ -	\$ -	\$ -
LIAB PY Past Year	\$ -	\$ -	\$ -	\$ -
LIAB PY Present Year	\$ -	\$ -	\$ 68,677	\$ 68,677
CPUC Energy Division	\$ -	\$ -	\$ -	\$ -
<i>Total Oversight Costs</i>	\$ -	\$ -	\$ 68,677	\$ 68,677
Total Program Costs	\$ 1,061,089	\$ 543,816	\$ 14,829,294	\$ 16,434,199

Notes:

- 1 Regulatory compliance labor estimated at one program FTE.
- 2 Other Administration Costs includes IT charges for systems support, printing and mailing costs, miscellaneous.
- 3 Indirect Charges not charged to Program.

Exhibit 4.11

SoCalGas Table TA 7.2 – Program Year 2000 Last Updated 4/11/02

	Costs Recorded by Cost Element			
	Labor	Non-Labor	Contract	Total
Energy Efficiency				
Gas Appliances	\$ 234,877	\$ 6,621	\$ 3,195,231	\$ 3,436,729
Weatherization Measures	\$ -	\$ -	\$ 10,700,419	\$ 10,700,419
Outreach & Assessment / In Home Energy Education	\$ -	\$ -	\$ -	\$ -
Education Workshops	\$ 34,530	\$ -	\$ 617,702	\$ 652,232
<i>Energy Efficiency TOTAL</i>	\$ 269,407	\$ 6,621	\$ 14,513,352	\$ 14,789,380
<i>Total Pilots</i>	\$ -	\$ -	\$ -	\$ -
Training Center	\$ 164,611	\$ 11,487	\$ -	\$ 176,098
Inspections	\$ -	\$ -	\$ -	\$ -
Advertising	\$ -	\$ -	\$ -	\$ -
M&E Studies	\$ -	\$ 28,050	\$ -	\$ 28,050
Regulatory Compliance	\$ -	\$ -	\$ -	\$ -
Other Administration	\$ 628,269	\$ 425,430	\$ 326,984	\$ 1,380,683
Indirect Costs	\$ -	\$ -	\$ -	\$ -
Oversight Costs				
LIAB Start-up	\$ -	\$ -	\$ -	\$ -
LIAB PY Past Year	\$ -	\$ 8,284	\$ -	\$ 8,284
LIAB PY Present Year	\$ -	\$ -	\$ -	\$ -
CPUC Energy Division	\$ -	\$ 29,121	\$ -	\$ 29,121
<i>Total Oversight Costs</i>	\$ -	\$ -	\$ -	\$ -
Total Program Costs	\$ 1,062,287	\$ 508,993	\$ 14,840,336	\$ 16,411,616

Exhibit 4.12

SoCalGas Table TA 7.2 – Program Year 2001 Last Updated 4/10/02

	Costs Recorded by Cost Element			
	Labor	Non-Labor	Contract	Total
Energy Efficiency				
Gas Appliances	\$ 248,952	\$ -	\$ 5,311,819	\$ 5,560,771
Electric Appliances	\$ -	\$ -	\$ -	\$ -
Weatherization Measures	\$ -	\$ -	\$ 11,508,939	\$ 11,508,939
Outreach & Assessment	\$ -	\$ -	\$ 1,716,929	\$ 1,716,929
In Home Energy Education	\$ -	\$ -	\$ 730,604	\$ 730,604
Education Workshops	\$ -	\$ -	\$ -	\$ -
<i>Energy Efficiency TOTAL</i>	\$ 248,952	\$ -	\$ 19,268,291	\$ 19,517,243
Pilots				
Attic Venting	\$ -	\$ -	\$ -	\$ -
<i>Total Pilots</i>	\$ -	\$ -	\$ -	\$ -
Administration	\$ -	\$ -	\$ -	\$ -
Training Center	\$ 173,617	\$ -	\$ 33,600	\$ 207,217
Inspections	\$ -	\$ -	\$ 434,453	\$ 434,453
Advertising	\$ -	\$ -	\$ 124,708	\$ 124,708
M&E Studies	\$ -	\$ -	\$ 182,752	\$ 182,752
Regulatory Compliance	\$ 246,785	\$ -	\$ 117,416	\$ 364,201
Other Administration	\$ 479,371	\$ -	\$ 1,214,670	\$ 1,694,041
Indirect Costs	\$ -	\$ -	\$ 44,185	\$ 44,185
Oversight Costs				
LIOB Expenses	\$ -	\$ -	\$ -	\$ -
CPUC Energy Division	\$ -	\$ -	\$ 28,060	\$ 28,060
<i>Total Oversight Costs</i>	\$ -	\$ -	\$ 28,060	\$ 28,060
Total Program Costs	\$ 1,148,724	\$ -	\$ 21,448,136	\$ 22,596,860

4.2 Detailed Life Cycle Bill Savings

This section contains the detailed life cycle bill savings for each utility and each program year. The values are for a 3% escalation rate.

Exhibit 4.13

PG&E Life Cycle Bill Savings– Program Year 1999 Last Updated 4/18/02

Measure Description	Number Installed	Per Measure Electric Impact (kWh)	Per Measure Gas Impact (Therms)	EUL	Total Measure Life Cycle Bill Savings (\$)
Weatherization - SF w/o AC	14,245	125.40	14.20	20	\$ 4,838,964
Weatherization - MF w/o AC	11,354	56.30	19.60	20	\$ 3,415,280
Weatherization - MH w/o AC	1,224	105.70	27.50	20	\$ 563,589
Weatherization - SF w AC	8,125	111.90	14.20	20	\$ 2,602,377
Weatherization - MF w AC	5,160	130.30	19.60	20	\$ 2,101,867
Weatherization - MH w AC	496	211.00	27.50	20	\$ 303,674
Refrigerator - SF	3,023	855.80	0	10	\$ 2,316,980
Refrigerator - MF	628	713.60	0	10	\$ 401,517
Refrigerator - MH	184	882.60	0	10	\$ 145,542
Evaporative Cooler - SF	574	542.00	0	10	\$ 278,639
Evaporative Cooler - MF	13	542.00	0	10	\$ 6,142
Evaporative Cooler - MH	55	542.00	0	10	\$ 26,803
Furnace - SF	109	0	13.00	10	\$ 9,573
Furnace - MF	5	0	13.00	10	\$ 403
Furnace - MH	8	0	13.00	10	\$ 705
Total Bill Savings for All Measures in Program Year					\$ 17,012,058

Total Number of Homes Served by the Program during Program Year 43,480

Life Cycle Bill Savings Per Home \$ 391.26

Exhibit 4.14

PG&E Life Cycle Bill Savings– Program Year 2000 Last Updated 4/18/02

Measure Description	Number Installed	Per Measure Electric Impact (kWh)		Per Measure Gas Impact (Therms)	EUL	Total Measure Life Cycle Bill Savings (\$)
		SH	AC			
Attic Access Weatherstripping - (98 & 99)	1,541	2.97		1.26	5	\$ 10,006.72
Attic Access Weatherstripping - sf	8,407	13.60	6.50	1.43	5	\$ 58,120.99
Attic Access Weatherstripping - mf	797	12.30	5.10	0.07	5	\$ 1,120.93
Attic Access Weatherstripping - mh	6	6.80	3.25	1.51	5	\$ 37.77
Attic Insulation - Gas	807	59.90		26.18	25	\$ 364,648.96
Attic Insulation - sf	3,657	271.70	129.90	29.00	25	\$ 1,722,529.10
Attic Insulation - mf	211	266.10	102.00	2.90	25	\$ 23,629.46
Caulking (98 & 99)	4,068	2.08		0.75	5	\$ 16,377.69
Caulking - sf	16,281	10.20	4.88	1.08	5	\$ 84,498.04
Caulking - mf	7,034	9.23	3.83	0.10	5	\$ 8,597.55
Caulking - mh	1,504	10.20	4.88	1.08	5	\$ 7,541.48
Compact Fluorescent Hard Wired Porch Lig	48	70.00	0.00	0.00	20	\$ 4,958.23
Compact Fluorescent Lights	158,025	57.80	0.00	0.00	8	\$ 7,005,122.73
Door Weatherstripping - (98 & 99)	3,839	6.30		2.35	5	\$ 47,998.40
Door Weatherstripping - sf	15,806	30.60	14.63	3.23	5	\$ 246,098.41
Door Weatherstripping - mf	5,832	27.68	11.48	0.30	5	\$ 21,385.10
Door Weatherstripping - mh	1,430	30.60	14.63	3.23	5	\$ 21,511.27
Faucet Aerators	31,882	0.00	0.00	3.50	5	\$ 439,662.99
Furnace Filters - (98 & 99)	1,751	2.13		0.85	5	\$ 7,784.48
Furnace Filters - sf	8,420	10.20	4.88	1.08	5	\$ 43,699.62
Furnace Filters - mf	2,101	9.23	3.83	0.10	5	\$ 2,568.02
Furnace Filters - mh	1,103	10.20	4.88	1.08	5	\$ 5,530.75
Low Flow Showerhead	29,356	247.20	0.00	16.40	10	\$ 3,549,367.26
Minor Home Repair - gas	3,550	14.18		5.43	10	\$ 185,676.94
Minor Home Repair - sf	16,245	67.90	32.50	7.20	10	\$ 1,029,141.54
Minor Home Repair - mf	5,141	66.50	25.50	0.70	10	\$ 77,618.11
Minor Home Repair - mh	1,307	67.90	32.50	7.20	10	\$ 80,077.59
Outlet Gaskets	28,270	0.00	0.00	0.80	15	\$ 222,264.17
Portable Evaporative Coolers	1,860	353.60	0.00	0.00	7	\$ 451,823.52
Permanant Evaporative Cooler Covers	3,437	0.00	0.00	2.60	3	\$ 21,241.46
Refrigerator	4,317	542.00	0.00	0.00	15	\$ 2,877,108.44
Water Heater Blanket	5,219	3.95	0.00	12.93	5	\$ 276,497.84
Water Heater Pipe Wrap	2,594	1.06	0.00	3.92	15	\$ 103,314.22
Total Bill Savings for All Measures in Program Year						\$ 19,017,560

Total Number of Homes Served by the Program during Program Year 32,730

Life Cycle Bill Savings Per Home \$ 581.04

Exhibit 4.15

PG&E Life Cycle Bill Savings-- Program Year 2001 Last Updated 4/24/02

Measure Description	Number Installed	Per Measure Electric Impact (kWh)		Per Measure Gas Impact (Therms)	EUL	Total Measure Life Cycle Bill Savings (\$)
		SH	AC			
Energy Efficiency Measures						
Attic Access Weatherstripping - mobile (Gas)	10	0.00	2.41	1.44	5	\$ 75
Attic Access Weatherstripping - mult fam (Electric)	46	12.31	1.90	0.00	5	\$ 344
Attic Access Weatherstripping - mult fam (Gas)	528	0.00	1.90	0.13	5	\$ 826
Attic Access Weatherstripping - sing fam (Electric)	211	13.60	2.41	0.00	5	\$ 1,780
Attic Access Weatherstripping - sing fam (Gas)	5,569	0.00	2.41	1.44	5	\$ 41,870
Attic Insulation - mult fam (Electric)	2	266.10	37.90	0.00	25	\$ 1,043
Attic Insulation - mult fam (Gas)	61	0.00	37.90	2.90	25	\$ 6,464
Attic Insulation - sing fam (Electric)	41	271.70	49.30	0.00	25	\$ 22,501
Attic Insulation - sing fam (Gas)	1,922	0.00	49.30	29.00	25	\$ 946,575
Attic Venting - mult fam (Electric)	1	12.30	2.10	0.00	25	\$ 25
Attic Venting - mult fam (Gas)	13	0.00	2.10	0.07	25	\$ 60
Attic Venting - sing fam (Electric)	9	13.60	2.40	0.00	25	\$ 247
Attic Venting - sing fam (Gas)	573	0.00	2.40	0.72	25	\$ 8,186
Building Envelope Repair - mobile (Electric)	61	67.90	12.10	0.00	10	\$ 4,585
Building Envelope Repair - mobile (Gas)	1,639	0.00	12.10	7.20	10	\$ 109,965
Building Envelope Repair - mult fam (Electric)	513	66.50	9.50	0.00	10	\$ 36,634
Building Envelope Repair - mult fam (Gas)	2,696	0.00	9.50	0.70	10	\$ 38,671
Building Envelope Repair - sing fam (Electric)	507	67.90	12.10	0.00	10	\$ 38,111
Building Envelope Repair - sing fam (Gas)	9,638	0.00	12.10	7.20	10	\$ 646,643
Caulking - mobile (Electric)	83	10.20	1.80	0.00	5	\$ 525
Caulking - mobile (Gas)	2,021	0.00	1.80	1.08	5	\$ 11,388
Caulking - mult fam (Electric)	1,037	9.20	1.40	0.00	5	\$ 5,791
Caulking - mult fam (Gas)	3,174	0.00	1.40	0.10	5	\$ 3,718
Caulking - sing fam (Electric)	576	10.20	1.80	0.00	5	\$ 3,641
Caulking - sing fam (Gas)	10,066	0.00	1.80	1.08	5	\$ 56,720
Compact Fluorescent Hard Wire Porch Lights	356	70.00	0.00	0.00	20	\$ 37,790
Compact Fluorescent Lamp	169,269	57.80	0.00	0.00	8	\$ 7,694,652
Door Weatherstripping - mobile (Electric)	80	30.60	5.40	0.00	5	\$ 1,517
Door Weatherstripping - mobile (Gas)	1,946	0.00	5.40	3.23	5	\$ 32,812
Door Weatherstripping - mult fam (Electric)	578	27.70	4.30	0.00	5	\$ 9,744
Door Weatherstripping - mult fam (Gas)	2,956	0.00	4.30	0.30	5	\$ 10,545
Door Weatherstripping - sing fam (Electric)	559	30.60	5.40	0.00	5	\$ 10,602
Door Weatherstripping - sing fam (Gas)	9,872	0.00	5.40	3.23	5	\$ 166,453
Duct Sealing and Repair -mult (Gas)	8	0.00	57.80	33.20	25	\$ 4,545
Duct Sealing and Repair - sing (Gas)	55	0.00	197.00	89.90	25	\$ 88,429
Energy Education (Electric)	1,960	0.00	0.00	0.00	1	\$ -
Energy Education (Gas)	19,446	0.00	0.00	0.00	1	\$ -
Evaporative Cooler Covers	2,187	1.02	0.00	2.60	3	\$ 16,260
Evaporative Coolers (Portable)	3,425	353.60	0.00	0.00	7	\$ 852,736
Faucet Aerators (Gas)	18,758	0.00	0.00	3.50	5	\$ 284,893
Furnace Filters - mobile (Electric)	50	10.20	1.82	0.00	5	\$ 317
Furnace Filters - mobile (Gas)	1,571	0.00	1.82	1.09	5	\$ 8,869
Furnace Filters - mult fam (Electric)	104	9.20	1.41	0.00	5	\$ 581
Furnace Filters - mult fam (Gas)	2,112	0.00	1.41	0.10	5	\$ 2,485
Furnace Filters - sing fam (Electric)	183	10.20	1.82	0.00	5	\$ 1,159
Furnace Filters - sing fam (Gas)	5,418	0.00	1.82	1.09	5	\$ 30,387
Furnace Repair (Gas)	453	0.00	0.00	0.00	10	\$ -
Furnace Replacement (Gas)	555	0.00	0.00	0.00	22	\$ -
Low Flow Showerhead (Gas)	15,918	0.00	0.00	16.40	10	\$ 2,020,411
Outlet/Switch Gaskets (Electric)	1,639	18.76	3.70	0.00	15	\$ 46,495
Outlet/Switch Gaskets (Gas)	14,908	0.00	3.70	0.80	15	\$ 193,744
Refrigerator Replacement	5,767	542.00	0.00	0.00	15	\$ 3,947,913
Water Heater Blanket - mobile (Gas)	378	0.00	0.00	13.20	5	\$ 21,652
Water Heater Blanket - mult fam (Gas)	376	0.00	0.00	13.20	5	\$ 21,537
Water Heater Blanket - sing fam (Gas)	2,322	0.00	0.00	13.20	5	\$ 133,004
Water Heater Pipe Wrap (Gas)	952	0.00	0.00	4.00	15	\$ 39,616
Sub-total for Energy Efficiency Measures						\$ 17,665,736
Rapid Deployment Measures						
Air Conditioning Replacement - Central	35	0.00	1393.35	0.00	18	\$ 69,369
Set-back Thermostats	179	0.00	8.28	49.30	12	\$ 79,994
Water heater Replacement	396	0.00	0.00	18.36	13	\$ 68,461
Sub-total for Rapid Deployment Measures						\$ 217,824
Total Bill Savings for All Measures in Program Year						\$ 17,883,560
Total Number of Homes Served by the Program during Program Year						37,935
Life Cycle Bill Savings Per Home						\$ 471.43

Exhibit 4.16

SCE Life Cycle Bill Savings– Program Year 1999 Last Updated 4/18/02

Measure Description	Number Installed	Per Measure Electric Impact ¹	EUL	Total Measure Life Cycle Bill Savings - From Algorithm
		(kWh)	(Yrs)	(\$)
Evaporative Cooler Installation	2,317	612.97	15	\$ 1,766,768
Evaporative Cooler Maintenance	1,773	177.62	4	\$ 128,084
Porch Light ²	22,173	204.10	2	\$ 905,477
Refrigerator Replacement ³	284	1,631.00	15	\$ 576,218
CFB-Relamping	175,797	45.70	6	\$ 4,773,284
Weatherization	2,469	584.93	20	\$ 2,025,060
Total Bill Savings for All Measures In Program Year				\$ 10,174,890

Total Number of Homes Served by the Program during Program Year⁴ 56,534

Life Cycle Bill Savings Per Home \$ 179.98

This calculation is based on LIEE data through 12/31/99 of which 40% of participants are also on the CARE rate.

1. kWh savings claims based 2/19/97 Load Impact Evaluation of the 1995 Direct Assistance Program for Evaporative Cooler Installation (weighted average), Relamping and Weatherization (weighted average).

2. Engineering estimate.

3. Edison replaces the older refrigerators, at least 10 years old, with super efficiency units (30% over the standard). The way the savings are measured is based on usage differential between the new and the old units. Overall, we calculate a weighted average based on the number of the different types of refrigerators replaced.

4. Porch light and refrigerator replacement are not part of this home served count.

Exhibit 4.17

SCE Life Cycle Bill Savings– Program Year 2000 Last Updated 4/18/02

Measure Description	Number Installed	Per Measure Electric Impact ¹	EUL	Total Measure Life Cycle Bill Savings - From Algorithm
		(kWh)	(Yrs)	(\$)
Evaporative Cooler Installation	2,083	675.0	15	\$ 1,818,887
Porch Light ²	31,485	204.1	2	\$ 1,403,596
Refrigerator Replacement ³	2,613	1,304.0	15	\$ 4,407,879
CFB-Relamping	168,856	45.7	6	\$ 4,817,560
Weatherization	1,347	550.6	20	\$ 1,154,351
Total Bill Savings for All Measures In Program Year				\$ 13,602,273

Total Number of Homes Served by the Program during Program Year⁴ 46,341

Life Cycle Bill Savings Per Home \$ 293.53

This calculation is based on LIEE data through 6/30/00 of which 40% of participants are also on the CARE rate.

1. kWh savings claims based 2/19/97 Load Impact Evaluation of the 1995 Direct Assistance Program for Evaporative Cooler Installation (weighted average), Relamping and Weatherization (weighted average).

2. Engineering estimate.

3. Edison replaces the older refrigerators, at least 10 years old, with super efficiency units (30% over the standard). The way the savings are measured is based on usage differential between the new and the old units. Overall, we calculate a weighted average based on the number of the different types of refrigerators replaced.

4. Porch light and refrigerator replacement are not part of this home served count.

Exhibit 4.18

SCE Life Cycle Bill Savings– Program Year 2001 Last Updated 4/18/02

Measure Description	Number Installed	Per Measure Electric Impact (kWh)		EUL (Yrs)	Total Measure Life Cycle Bill Savings - From Algorithm (\$)
		SH	AC		
Energy Efficiency Measures					
Attic Access Weatherstripping ¹	34	0	0	5	\$ -
Attic Insulation	13	310.10	213.30	25	\$ 10,550
Attic Ventilation ²	277	0	0	25	\$ -
Caulking ¹	-	0	0	5	\$ -
Compact Fluorescents (indoor)	276,126	26.50	0	6	\$ 4,827,578
Compact Fluorescents (outdoor)	59,991	204.10	0	2	\$ 2,959,274
Cover Plate/Gaskets ²	1,441	0	0	15	\$ -
Duct Repair ²	50	0	0	25	\$ -
Evaporative Cooler Installation	3,962	0	319.20	15	\$ 1,706,244
Evaporative Cooler/AC Covers ³	4	0	0	3	\$ -
Faucet Aerators ²	1,126	0	0	5	\$ -
Low Flow Showerhead	1,323	271.90	0	10	\$ 361,048
Minor Home Repairs	1,586	56.10	53.00	10	\$ 134,678
Miscellaneous ⁴	208	0	0	0	\$ -
Refrigerator Recycle	8,829	0	0	6	\$ -
Refrigerator Replacement	11,574	542.00	0	15	\$ 8,463,434
Water Heater Blanket	134	212.70	0	5	\$ 16,039
Water Heater Pipe Wrap ³	113	0	0	15	\$ -
Weatherstripping	1,580	32.40	31.80	5	\$ 44,127
<i>Sub-total for Energy Efficiency Measures</i>					\$ 18,522,973
Rapid Deployment Measures					
Air Conditioner Replacement - Central	538	0	2785.88	18	\$ 2,212,017
Air Conditioner Replacement - Room	254	0	436.8	11	\$ 119,787
Evaporative Cooler Maintenance	4,556	0	20.1	4	\$ 42,208
Set-back Thermostats	40	0	475	12	\$ 21,889
Water Heater Replacement ³	114	0	0	13	\$ -
<i>Sub-total for Rapid Deployment Measures</i>					\$ 2,395,901
Total Bill Savings for All Measures In Program Year					\$ 20,918,874

Total Number of Homes Served by the Program during Program Year 86,903

Life Cycle Bill Savings Per Home \$ 240.72

1. This measures have impacts included in the weatherstripping measure. No specific per-measure impact claimed.
2. These measures have impacts included in the minor home repair measure. No specific per-measure impact claimed.
3. Zero savings are claimed for this measure.
4. Zero savings are claimed for this measure, which includes cunscreenes, shower arm, shower diverter, and other.

Exhibit 4.19

SDG&E Life Cycle Bill Savings– Program Year 1999 Last Updated 4/18/02

Measure Description	Number Installed	Per Measure Electric Impact (kWh)	Per Measure Gas Impact (Therms)	EUL (years)	Total Measure Life Cycle Bill Savings (\$)
Weather stripping - MF	5,082	5	1	5	\$ 34,002
Weather stripping - SF	1,077	5	3	5	\$ 13,104
Minor Home Repair Materials	2,968	5	8	10	\$ 148,643
Low Flow Showerheads	4,385	174	7	10	\$ 851,998
Caulking - MF	4,653	0	1	5	\$ 19,820
Caulking - SF	934	0	3	5	\$ 9,094
Ceiling Insulation R-19	139	34	21	25	\$ 38,954
Ceiling Insulation R-11	53	34	21	25	\$ 14,853
Water Heater Blankets	470	138	6	5	\$ 39,830
Exaporative Cooler Cover	287	0	26	3	\$ 13,279
Furnace Replacement	47	0	8	22	\$ 3,756
Refrigerator Replacement	200	402	0	15	\$ 95,649
Exterior CFL Fixture	95	69	0	20	\$ 9,330
Compact Fluorescent Lights	8,758	69	0	9	\$ 486,217
Evaporative Cooler Replacement	1	130	0	7	\$ 85
Total Bill Savings for All Measures in Program Year					\$ 1,778,613

Total Number of Homes Served by the Program during Program Year 10,993

Life Cycle Bill Savings Per Home \$ 161.80

Exhibit 4.20

SDG&E Life Cycle Bill Savings– Program Year 2000 Last Updated 4/18/02

Measure Description	Number Installed	Per Measure Electric Impact	Per Measure Gas Impact	EUL	Total Measure Life Cycle Bill Savings
		(kWh)	(Therms)	(years)	(\$)
Attic Venting - MF Electric*	18	0.00	0.00	25	\$ -
Attic Venting - MF Gas*	68	0.00	0.00	25	\$ -
Auto Sweep*	25	0.00	0.00	5	\$ -
Caulking - MF	3,470	0.00	1.40	5	\$ 16,166
Caulking - MH	5,350	0.00	3.20	5	\$ 56,972
Caulking - SF	688	0.00	3.20	5	\$ 7,326
Ceiling Insulation - Electric	17	34.00	0.00	25	\$ 1,000
Ceiling Insulation - Gas	99	0.00	21.00	25	\$ 23,266
Compact Fluorescent Lights	49,722	68.62	0.00	9	\$ 1,607,535
Door Replacement*	587	0.00	0.00	10	\$ -
Door Threshold - Electric*	275	0.00	0.00	5	\$ -
Door Threshold - Gas*	1,036	0.00	0.00	5	\$ -
Energy Education	13,660	47.00	0.00	1	\$ 75,694
Evaporative Cooler Replacement	21	130.00	0.00	15	\$ 3,402
Exaporative Cooler Cover	603	0.00	26.00	3	\$ 31,777
Exterior CFL Fixture	59	68.62	0.00	20	\$ 6,054
Faucet Aerators - Electric*	1,153	0.00	0.00	5	\$ -
Faucet Aerators - Gas	6,533	0.00	8.12	5	\$ 176,536
Furnace Repair	507	0.00	1.28	10	\$ 3,943
Furnace Replacement	262	0.00	1.28	22	\$ 3,515
Glass Replacement*	621	0.00	0.00	10	\$ -
Jamb Replacement*	38	0.00	0.00	5	\$ -
Low Flow Showerheads - Electric	1,173	174.00	0.00	10	\$ 189,466
Low Flow Showerheads - Gas	6,649	0.00	7.20	10	\$ 290,828
Minor Home Repair Materials - Electric	448	5.00	0.00	10	\$ 2,078
Minor Home Repair Materials - Gas	2,537	0.00	8.00	10	\$ 123,316
Outlet/Switch Gaskets - Electric*	18,081	0.00	0.00	15	\$ -
Outlet/Switch Gaskets - Gas*	68,020	0.00	0.00	15	\$ -
Refrigerator Replacement	714	402.15	0.00	15	\$ 357,814
Water Heater Blankets - Electric	165	138.00	0.00	5	\$ 11,866
Water Heater Blankets - Gas	933	0.00	5.80	5	\$ 18,014
Water Heater Pipe Wrap - Electric*	174	0.00	0.00	15	\$ -
Water Heater Pipe Wrap - Gas	989	0.00	8.00	15	\$ 65,070
Weather stripping - MF, Elec	524	5.00	0.00	5	\$ 1,369
Weather stripping - MF, Gas	2,972	0.00	1.40	5	\$ 13,844
Weather stripping - SF, Elec	104	5.00	0.00	5	\$ 272
Weather stripping - SF, Gas	591	0.00	3.20	5	\$ 6,291
Total Bill Savings for All Measures in Program Year					\$ 3,093,416

Total Number of Homes Served by the Program during Program Year 13,660

Life Cycle Bill Savings Per Home \$ 226.46

*SDG&E has no studies supporting savings for this measure. No impacts taken during this year.

Exhibit 4.21

SDG&E Life Cycle Bill Savings– Program Year 2001 Last Updated 4/10/02

Measure Description	Number Installed	Per Measure Electric Impact (kWh)	Per Measure Gas Impact (Therms)	EUL (years)	Total Measure Life Cycle Bill Savings (\$)
Energy Efficiency Measures					
Attic Ventilation*	135	0	0	25	\$ -
Auto Sweep*	195	0	0	5	\$ -
Caulking - MF	3,625	0	1.4	5	\$ 18,330
Caulking - SF	6,316	0	3.2	5	\$ 72,998
Ceiling Insulation R-11 (Electric)	12	34	0	25	\$ 709
Ceiling Insulation R-11 (Gas)	68	0	21	25	\$ 16,790
Ceiling Insulation R-19 (Electric)	29	34	0	25	\$ 1,737
Ceiling Insulation R-19 (Gas)	167	0	21	25	\$ 41,135
Compact Fluorescent Lights	36,240	68.62	0	9	\$ 2,178,878
Cover Plates/Gaskets*	7,003	0	0	15	\$ -
Door Replacement*	1,719	0	0	10	\$ -
Door Threshold*	1,783	0	0	5	\$ -
Duct Register Sealing*	3,249	0	0	5	\$ -
Evaporative Cooler Cover	439	0	26	3	\$ 25,930
Evaporative Cooler Replacement	2	130	0	15	\$ 333
Exterior CFL Fixture	20	68.62	0	20	\$ 2,108
Faucet Aerators	9,280	0	8.12	5	\$ 272,159
Furnace repairs	685	0	1.28	10	\$ 5,648
Furnace Replacement	410	0	1.28	22	\$ 5,763
Glass Replacement*	743	0	0	10	\$ -
In Home Energy Education	14,839	47	0	1	\$ 81,879
Jamb Replacement*	129	0	0	5	\$ -
Low Flow Showerheads (Electric)	1,308	174	0	10	\$ 216,586
Low Flow Showerheads (Gas)	7,410	0	7.2	10	\$ 343,690
Minor Home Repair Materials	3,399	5	8	10	\$ 191,339
Refrigerator Replacement	5,484	402.15	0	15	\$ 2,821,798
Water Heater Blankets (Electric)	143	138	0	5	\$ 10,528
Water Heater Blankets (Gas)	810	0	5.8	5	\$ 16,969
Water Heater Pipe Wrap	908	0	8	15	\$ 62,899
Weatherstripping (Electric) - MF	601	5	0	5	\$ 1,604
Weatherstripping (Electric) - SF	702	5	0	5	\$ 1,872
Weatherstripping (Gas) - MF	3,406	0	1.4	5	\$ 17,222
Weatherstripping (Gas) - SF	3,976	0	3.2	5	\$ 45,957
<i>Sub-total for Energy Efficiency Measures</i>					\$ 6,454,858
Rapid Deployment Measures					
Air Conditioner Replacement - Central	195	781	0	18	\$ 219,453
Air Conditioner Replacement - Room	184	339	0	11	\$ 63,869
Duct Sealing & Repair (Electric Heat)	9	425	0	25	\$ 6,867
Duct Sealing & Repair (Gas Heat)	53	237	27	25	\$ 38,429
Set back Thermostat (Electric Heat)	50	88	0	15	\$ 5,641
Set back Thermostat (Gas Heat)	284	9	30	15	\$ 77,018
Water Heater Replacement - Gas	423	0	21	13	\$ 69,610
Whole House Fans	1	223	0	20	\$ 343
<i>Sub-total for Rapid Deployment Measures</i>					\$ 481,230
Total Bill Savings for All Measures in Program Year					\$ 6,936,088

Total Number of Homes Served by the Program during Program Year 19,315

Life Cycle Bill Savings Per Home \$ 359.10

*SDG&E has no studies supporting savings for this measure. No impacts taken during this year.

Exhibit 4.22

SoCalGas Life Cycle Bill Savings– Program Year 1999 Last Updated 4/18/02

Measure Description	Number Installed	Per Measure Electric Impact (kWh)	Per Measure Gas Impact (Therms)	EUL	Total Measure Life Cycle Bill Savings (\$)
Lo-Flow Showerhead SF,MF,MH	20,068	-	8.8	10	\$ 836,635
Ceiling Insulation SF	1,961	-	18.9	25	\$ 322,696
Ceiling Insulation MF	1,181	-	18.9	25	\$ 194,342
BER SF	13,929	-	4.5	10	\$ 296,949
BER MF	8,366	-	4.5	10	\$ 178,353
BER MH	647	-	4.5	10	\$ 13,793
Weatherstripping/Caulking SF	14,615	-	3	5	\$ 115,070
Weatherstripping/Caulking MF	8,869	-	3	5	\$ 69,830
Weatherstripping/Caulking MH	1,485	-	3	5	\$ 11,692
Water Heater Blanket SF	3,155	-	7	5	\$ 57,962
Water Heater Blanket MF	1,874	-	7	5	\$ 34,428
Water Heater Blanket MH	207	-	7	5	\$ 3,803
Faucet Aerator SF,MF, MH	23,667	-	3.5	5	\$ 217,398
Pipe Insulation SF, MF, MH	3,097	-	2.6	15	\$ 51,479
Register Seal SF, MF, MH	604	-	0.4	5	\$ 634
Evaporative Cooler Cover SF	548	-	2.6	3	\$ 2,314
Switch/Outlet Gaskets SF, MF	21,160	-	0.8	15	\$ 108,223
Exhaust Dampers	105	-	1.7	3	\$ 290
Furnace Replacement SF	2,257	-	6.8	22	\$ 124,728
Furnace Repair SF	607	-	0.0	10	\$ -
Weatherization - Electric ¹	25,238	12.0	0.0	20	\$ 454,022
Total Bill Savings for All Measures in Program Year					\$ 3,094,640

Total Number of Homes Served by the Program during Program Year 27,495

Life Cycle Bill Savings Per Home \$ 112.55

1. This measure includes the electric AC savings resulting from weatherization; per unit kWhs are taken from SCE's "Impact Evaluation of 1999 DAP" dated February 19, 1997.

Exhibit 4.23

SoCalGas Life Cycle Bill Savings– Program Year 2000 Last Updated 4/18/02

Measure Description	Number Installed	Per Measure Electric Impact (kWh)	Per Measure Gas Impact (Therms)	EUL	Total Measure Life Cycle Bill Savings (\$)
Low Flow Showerhead	17,945	-	9	10	\$ 800,116
Ceiling Insulation SF	1,493	-	21.2	25	\$ 286,207
Ceiling Insulation MF	862	-	14.9	25	\$ 116,139
BER SF	13,006	-	3.6	10	\$ 231,960
BER MF	7,580	-	3.6	10	\$ 135,188
BER MH	652	-	5.0	10	\$ 16,150
Caulking SF	9,635	-	3.3	5	\$ 88,319
Caulking MF	6,510	-	2.4	5	\$ 43,399
Caulking MH	1,133	-	3.3	5	\$ 10,386
Energy Education	22,293	-	0	1	\$ -
Caulking and Weatherstripping	1,250	-	0	5	\$ -
Water Heater Blanket SF	2,256	-	7.2	5	\$ 45,119
Water Heater Blanket MF	1,223	-	6.8	5	\$ 23,101
Water Heater Blanket MH	117	-	7.2	5	\$ 2,340
Faucet Aerator	20,896	-	3.6	5	\$ 208,955
Water Heater Pipe Wrap (Gas)	2,670	-	2.6	15	\$ 46,230
Register Seal	2	-	0.4	5	\$ 2
Evaporative Cooler Cover	505	-	2.8	3	\$ 2,471
Switch/Outlet Gaskets	18,130	-	0.9	15	\$ 108,661
Exhaust Dampers	1	-	1.7	3	\$ 3
Furnace Replacement	2,613	-	0	22	\$ -
Furnace Repair SF	383	-	0.0	10	\$ -
Weatherstripping MF	7,779	-	0.0	5	\$ -
Weatherstripping SF	13,419	-	0.0	5	\$ -
Weatherization - Electric	13,419	12.0	0.0	20	\$ 250,631
Total Bill Savings for All Measures in Program Year					\$ 2,415,378

Total Number of Homes Served by the Program during Program Year 22,617

Life Cycle Bill Savings Per Home \$ 106.79

Exhibit 4.24

SoCalGas Life Cycle Bill Savings– Program Year 2001 Last Updated 4/25/02

Measure Description	Number Installed	Per Measure Electric Impact (kWh)	Per Measure Gas Impact (Therms)	EUL	Total Measure Life Cycle Bill Savings (\$)
Energy Efficiency Measures					
Attic Insulation - SF	172	0.0	24.6	25	\$ 39,408
Attic Insulation - MF	53	0.0	20.0	25	\$ 9,873
Caulking - SF/MH	2,415	0.0	0.9	5	\$ 6,218
Caulking - MF	998	0.0	0.7	5	\$ 1,999
Door Weatherstripping - SF/MH	16,395	0.0	2.7	5	\$ 126,649
Door Weatherstripping - MF	16,335	0.0	2.3	5	\$ 107,491
Evaporative Cooler Cover	1,197	0.0	2.6	3	\$ 5,601
Faucet Aerator	31,544	0.0	3.5	5	\$ 315,871
Furnace Repair	397	0.0	0.0	10	\$ -
Furnace Replacement	2,962	0.0	0.0	22	\$ -
Low Flow Showerhead	29,934	0.0	9.4	10	\$ 1,435,810
Minor Home Repairs - SF/MH	14,129	0.0	6.1	10	\$ 439,790
Minor Home Repairs - MF	15,162	0.0	5.0	10	\$ 386,840
Miscellaneous Measures (Weatherization - Electric)	33,046	12.0	0.0	5	\$ 223,160
Switch/Outlet Gasket	28,597	0.0	0.8	15	\$ 156,922
Water Heater Blanket - SF/MH	2,609	0.0	7.6	5	\$ 56,730
Water Heater Blanket - MF	1,687	0.0	7.4	5	\$ 35,717
Water Heater Pipe Wrap	2,371	0.0	2.6	15	\$ 42,284
<i>Sub-total for Energy Efficiency Measures</i>					\$ 3,390,361
Rapid Deployment Measures					
Water Heater Replacement - Gas	1,549	0.0	16.0	13	\$ 153,848
<i>Sub-total for Rapid Deployment Measures</i>					\$ 153,848
Total Bill Savings for All Measures in Program Year					\$ 3,544,209

Total Number of Homes Served by the Program during Program Year 33,046

Life Cycle Bill Savings Per Home \$ 107.25

Appendix A PY2001 PER-UNIT IMPACTS AND SOURCES

On February 2, 2002, in the pre-hearing conference for Rulemaking 01-08-027¹⁹, Administrative Law Judge Meg Gottstein requested that the joint utilities provide the “input assumptions and methods” for the LIEE program measures. This was interpreted to mean the per-unit impacts and source of that information. This request was reiterated in Ordering Paragraph 4 of the Assigned Commissioner Ruling Regarding Post-2001 Program Planning For Low Income Assistance Programs (February 27, 2002), which ordered the utilities to “include in their Annual Report on LIEE activities, due May 1, 2002, comparative information on how the savings for each home was determined.”

Because there are multiple methods of calculating the per-unit impacts, the source of that data point is provided. The methodology used to determine the per-unit impacts varies from engineering estimates to detailed statewide evaluations. While the per-unit impacts designated herein may have been based on detailed analysis over climate zones, there is a single value used to determine bill savings.

The following table presents the per-unit impacts and sources for the most relevant year, PY2001.

¹⁹ The rulemaking on the Commission's proposed policies and programs concerning low-income assistance programs.

Low Income Energy Efficiency Program Costs and Bill Savings 2001 Report

Energy Efficient Measure	Per Measure Impacts and Sources												
	PG&E				SCE			SDG&E			SoCalGas		
	Therm	kWh - SH	kWh -	Notes	kWh - SH	kWh -	Notes	Therm	kWh	Notes	Therm	kWh	Notes
Electric & Gas Appliances													
Compact Fluorescent Hard Wire Porch Lights					204.1		2						
Compact Fluorescent Hard Wire Porch Lights	0.0	70.0	0.0	4				0.0	68.6	3			
Compact Fluorescent Lamp (6 year EUL)					26.5		2						
Compact Fluorescent Lamp (8 year EUL)	0.0	57.8	0.0	4									
Compact Fluorescent Lamp (9 year EUL)								0.0	68.6	3			
Evaporative Cooler Covers	2.6	1.0	0.0	6,12				26.0	0.0	13	2.6	0.0	6
Evaporative Cooler Replacement					319.2	1.1	2	0.0	130.0	3			
Evaporative Coolers (Portable)	0.0	353.6	0.0	2									
Refrigerator Replacement	0.0	542.0	0.0	2	542.0	0.0	2	0.0	402.2	3			
Refrigerator Recycling					2,131.0	0.0	16						
Furnace Filters - MH	1.1	10.2	4.9	1,7									
Furnace Filters - MF	0.1	9.2	3.8	7									
Furnace Filters - SF	1.1	10.2	4.9	7									
Furnace Repair								1.3	0.0	3			
Furnace Replacement								1.3	0.0	3			
Faucet Aerators**	3.5	7.4	0.0	6,9				8.1	0.0	13	3.5	0.0	6
Low Flow Showerhead **	16.4	247.2	0.0	2	271.9	0.0	2	7.2	174.0	2	9.4	0.0	2
Water Heater Blanket**	13.2	197.8	0.0	2	212.7	0.0	2	5.8	138.0	2	7.6	0.0	2,15
Water Heater Pipe Wrap**	4.0	58.0	0.0	4				8.0	0.0	13	2.6	0.0	6
Weatherization Measures													
Attic Access Weatherstripping - MH	1.4	13.6	6.5	1,2,8									
Attic Access Weatherstripping - MF	0.1	12.3	5.1	2,8									
Attic Access Weatherstripping - SF	1.4	13.6	6.5	2,8									
Attic Insulation					310.1	213.3	2	21.0	34.0	2			
Attic Insulation - MF	2.9	266.1	102.0	2							20.0	0.0	2
Attic Insulation - SF	29.0	271.7	129.9	2							24.6	0.0	2
Attic Venting - MF	0.1	12.3	5.6	2,8									
Attic Venting - SF	0.7	13.6	6.5	2,8									
Building Envelope (Minor Home) Repair - MH	7.2	67.9	32.5	1,2							6.1	0.0	2
Building Envelope (Minor Home) Repair - MF	0.7	66.5	25.5	2							5.0	0.0	2
Building Envelope (Minor Home) Repair - SF	7.2	67.9	32.5	2							6.1	0.0	2
Building Envelope (Minor Home) Repair					56.1	53.0	2	8.0	5.0	11			
Caulking - MH	1.1	10.2	4.9	1,2,5							0.9	0.0	2
Caulking - MF	0.1	9.2	3.8	2,5				1.4	0.0	2	0.7	0.0	2
Caulking - SF	1.1	10.2	4.9	2,5				3.2	0.0	2	0.9	0.0	2
Caulking and Weatherstripping					32.4	31.8	2						
Door Weatherstripping - MH	3.2	30.6	14.6	1,2,5							2.7	0.0	2
Door Weatherstripping - MF	0.3	27.7	11.5	2,5							2.3	0.0	2
Door Weatherstripping - SF	3.2	30.6	14.6	2,5							2.7	0.0	2
Energy Education								0.0	47.0	3			
Outlet/Switch Gaskets	0.8	18.8	10.0	6,10							0.8	0.0	6
Weather stripping - SF								3.2	5.0	2			
Weather stripping - MF								1.4	5.0	2			
Weatherization (Electric)											0.0	12.0	2

Low Income Energy Efficiency Program Costs and Bill Savings 2001 Report

Energy Efficient Measure	Per Measure Impacts and Sources												
	PG&E				SCE			SDG&E			SoCalGas		
	Therm	kWh - SH	kWh -	Notes	kWh - SH	kWh -	Notes	Therm	kWh	Notes	Therm	kWh	Notes
Landlord Rebate Pilots													
- Refrigerators													
- Room AC													
- Central AC													
Pilot Rapid Deployment Measures													
- Air Conditioner Replacement - Room					0.0	436.8	6	0.0	339.0	14			
- Air Conditioner Replacement - Central	0.0	0.0	1,393.4	14	0.0	2,785.9	6	0.0	781.0	14			
- Duct Sealing and Repair - MF Gas Heat	33.2	0.0	155.5	14									
- Duct Sealing and Repair - SF Gas Heat	89.9	0.0	530.1	14									
- Duct Sealing and Repair - Electric Heat								0.0	425.0	14			
- Duct Sealing and Repair - Gas Heat								27.0	237.0	14			
- Whole House Fans								0.0	223.0	14			
- Water Heater Replacement - gas	18.4	0.0	0.0	14				21.0	0.0	14	21.0	0.0	14
- Set-back Thermostats - Electric Heat					475.0		6	0.0	88.0	14			
- Set-back Thermostats - Gas Heat	49.3	0.0	22.3	14				30.0	9.0	14			
- Evaporative Cooler Maintenance					0.0	20.1	2						

*All PG&E AC impacts have been reduced to account for the fact that not all homes have AC. All the values here were multiplied by 0.3716 to determine impacts for bill savings.

**Water heating measures with electric water heating impacts have values under kWh-SH.

Notes:

1. Mobile home savings are equal to single family.
2. *First Year Impact Study of 1998 Low Income Energy Efficiency Programs*, Kenneth Parris, April 2000
3. September 21, 2000 SDG&E Advice Letter (1239-E-A1207-G-A)
4. *Measure Incentives and Cost Effectiveness for the California Residential Contractor Program*, Robert Mowris & Associates, September 15, 1999.
5. The Parris report cites one value for "Weatherstripping/Caulking." PG&E has attributed 25% of that value to caulking and 75% of that value to door weatherstripping.
6. *First Year Impact Study of Southern California Gas Company's 1996 Direct Assistance Program*, Kenneth Parris, Robert Mowris, filed March 2, 1998.
7. Because PG&E has no source for the impacts for furnace filters, they are assumed to have the same energy savings as caulking.
8. Attic Access Weatherstripping is equal to 8/18 of the door weatherstripping saving (based on a 2' by 2' access door and a 3' by 6' door).
9. Faucet Aerator gas impacts are taken from the source cited in note 5. Electric impacts are a straight engineering conversion of the gas impacts based on a gas water heater efficiency of 80%.
10. The Outlet Gasket kWh savings for electric space heating are a straight engineering conversion of the therm savings based on a gas furnace efficient of 80%. The air conditioning saving assume an EER of 8. Savings were assumed to be the same across housing types since no information was available at the time.
11. *Joint Utility Low Income Energy Efficiency Program Costs and Bill Savings Standardization Report*, February 1, 2001, revised March 5, 2001.
12. Electric impacts are a straight engineering conversion of the gas impacts based on a gas furnace efficiency of 75% and an electric furnace efficiency of 100%.
13. SDG&E Engineering Calculation for July 1, 1000 LI Program filing
14. *Low Income Energy Efficiency Program Standardization Project Phase 3 Report - Appendix G. July 2001.*
15. MF homes have an annual gas savings of 7.4 therms for SoCalGas
16. PY2001 Residential Refrigerator Recycle Filing, Table C

~~Appendix A~~ **Appendix B PUBLIC WORKSHOP ON BILL SAVINGS REPORT**

Summary of Public Workshop on LIEE 2002 Bill Savings Interim Report May 14, 2002, Pacific Energy Center San Francisco, California

A Public Workshop was noticed per California Public Utilities Commission (CPUC) requirements and held on May 14, 2002 at the Pacific Energy Center in San Francisco. Equipoise Consulting facilitated and recorded the events at the meeting. Attendance lists are appended in Attachment A.

One entity outside the utility and regulatory staff attended the meeting. The meeting was called to order at 10:00 AM. A presentation summarizing the results of the Joint Utility Low Income Energy Efficiency Program 2001 Costs and Bill Savings Standardization Report, Draft Interim Report dated April 25, 2002 (Attachment B) was presented and discussed.

The following issues were raised and responded to by the people responsible for the development or the draft interim report (responses are in *Italics*):

1. SCE has identified a few installation rate errors in the draft interim report. These errors are mostly in the measure for which they do not claim savings, and will not affect the results as currently presented. Updated values will be supplied for the final report. (SCE)
2. What is basis for costs shown to CPUC ED and how is it allocated across the utilities? (ICA)

These costs are split between the utilities according to a statement in D.00-02-045 on February 17, 2000 (Rulemaking 98-07-037, Order 9). The split is PG&E 30%, SCE 30%, SoCalGas 25%, and SDG&E 15%.

3. What are the dollars that are identified as a cost item for the CPUC energy division use for? (ICA)

This money is used to pay for staffing in the CPUC Energy Division.

4. PG&E costs include Combustion Appliance Safety (CAS) costs, but they are not part of the LIEE budget. Why is this included in the ratio? (ICA)

The utilities are supposed to include all costs that are related regardless of whether they are in the LIEE budget. This is because the costs are supposed to reflect the total cost of the low-income programs, not just the budgeted costs.

5. Are the utilities sure that all LIEE costs are known? (i.e., are the legacy accounting systems able to deal with this?) (ICA)

Yes, the definitions in the RRM are followed and do allow the utilities to report costs that appear to represent common values.

The workshop was adjourned at approximately 11:20 AM by unanimous agreement since all issues had been discussed

Attachment A Attendees at Workshop

**Public Workshop on LIEE Program Bill Savings Report
Prepared by the Joint RRM Standardization Team and Cost Effectiveness Subcommittee
Tuesday, May 14, 2002
PG&E Pacific Energy Center, 851 Howard St., San Francisco
10:00 AM to 12:00 Noon**

	Name	Organization	Mailing Address	Phone Number	Email Address
1	Mary O'Drain	Pacific Gas & Electric	123 Mission Street, MC H14G, San Francisco, CA 94177	415-973-2317	mjob@pge.com
2	Gilbert Escamilla	Office of Ratepayer Advocates	Public Utilities Commission, Office of Ratpayer Advocates, 505 Van Ness Ave, San Francisco, CA	415-703-1862	gil@cpus.ca.gov
3	Henry DeJesus (by phone)	San Diego Gas & Electric	8335 Century Park Ct., San Diego, CA 92123	858-654-1723	hdejesus@sdge.com
4	Tim Caulfield	Equipoise Consulting Inc.	4309 Whittle Ave, Oakland, CA 94602	510-531-1080	equipoise@covad.net
5	Mary Sutter	Equipoise Consulting Inc.	4309 Whittle Ave, Oakland, CA 94602	510-864-8507	msutter@alamedanet.net
6	Ivy Walker	CPUC Energy Division	Public Utilities Commission, Energy Division, 505 Van Ness Ave, San Francisco, CA	415-703-2181	imw@cpuc.ca.gov
7	Bob Burt	I.C.A.	1977 F Street, Sacramento CA 95814	916-444-2950	bob.burt@macnexus.org
8	Maria Arquines	PG&E	77 Beale Street, B9A, San Francisco CA 94105	415-973-1713	mlha@pge.com
9	Angela Jones	Southern California Edison	3rd Floor, B7, 2131 Walnut Grove Ave., Rosemead, CA 91770	626-302-8061	angela.jones@sce.com
10	Sharon Lee (by Phone)	Southern California Gas	555 W Fifth Street, ML 24A1, Los Angeles, CA 90013	213-244-3248	slee@socalgas.com
11	Diane Calden	Pacific Gas & Electric	123 Mission Street, San Francisco, CA 94177	415-973-2461	dlc@pge.com
12	Don Wood (by phone)	San Diego Gas & Electric	8335 Century Park Ct., San Diego, CA 92123	858636-5799	dwood@sdge.com
13	Jeorge Tagpipes	CPUC Energy Division	Public Utilities Commission, Energy Division, 505 Van Ness Ave, San Francisco, CA	415-703-2451	jst@cpuc.ca.gov

Attachment B

Summary Presentation of 2001 Costs and Bill Savings Report for Workshop

Slide 1

Bill Savings

Costs and Bill Saving in the
Low Income Energy
Efficiency Programs for
1999 to 2001

Bill Savings Public Workshop
May 15, 2002 - San Francisco

Slide 2

Introduction

In 2000, D.00-07-020, Ordering Paragraph 7 ordered the utilities to:

- ...jointly develop standardized methods for producing bill savings and expenditures for the Low Income Energy Efficiency (LIEE) program on an overall program and per unit basis, by utility.
- The methods were developed and the report ordered in D.00-07-020 was filed on time with errata filed on March 12, 2001.

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Slide 3

Introduction (cont.)

- This workshop presents the results of applying the accepted methodology for determining costs and bill savings estimates of the LIEE programs from 1999 through 2001.
- An interim report has been filed that is in compliance with Decision (D) 01-12-020, Ordering Paragraph 4

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Slide 4

Costs

- There are 18 cost variables that are separated into labor, non-labor, and contract expenditure components.

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Slide 5

Bill Savings

- Bill savings are the life cycle net present value of the dollars saved by the dwelling due to the measures installed under the LIEE programs.
 - Energy savings are determined from engineering analysis or M&E studies performed after the program was fielded.
 - M&E studies used were performed for PY 1995 by PG&E, SDG&E, SCE; for PY 1996 by SoCalGas; jointly for all 4 utilities for PY 1998.

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Slide 6

Bill Savings

- The general algorithm for estimating bill savings is:

$$\text{Life Cycle Bill Savings} = \sum_{m=1}^M \left[\sum_{r=1}^2 \sum_{Y=1}^{\text{EUL}_m} \sum_{\text{CP}=1}^n \text{Impact}_m * \text{Number}_m * \text{energy rate}_{Y,r,\text{CP}} * \frac{1}{(1 + \text{DiscountRate})^{Y-1}} \right]$$

where:

- r = fuel type (gas or electric)
- Y = Year, starting with implementation program year
- m = measure type
- energy rate_{Y,r} = energy rate (\$ per kWh or therm) for fuel r in year Y
- Impact_m = measure m gross impact per year (kWh or therm)
- Number_m = number of measure type m installed
- EUL_m = effective useful life (years) of measure type m
- CP = Costing period, n = number of costing periods

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Slide 7

Energy Rates

- The methodology used for forecasting energy rates can cause significant single year changes in energy rates resulting substantial perturbations in the life cycle bill savings.
- This phenomenon is seen in this report, resulting from PG&E having a higher PY2001 therm rate than the other two gas utilities. In future reports the bill savings estimates will self-correct as the PY2001 energy rates are replaced by energy rates for subsequent years.

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Slide 8

Energy Rates (cont)

Year	PG&E		SCE	SDG&E		SoCalGas	
	kWh	Therm	kWh	kWh	Therm	kWh	Therm
1999	0.1159	0.5916	0.1040	0.0902	0.5523	0.1040	0.5209
2000	0.1159	0.6537	0.1040	0.1179	0.5926	0.1040	0.6110
2001	0.1159	0.9546	0.1238	0.1174	0.7945	0.1238	0.6294
All years afterwards	Previous Year * (1+Escalation Rate)						

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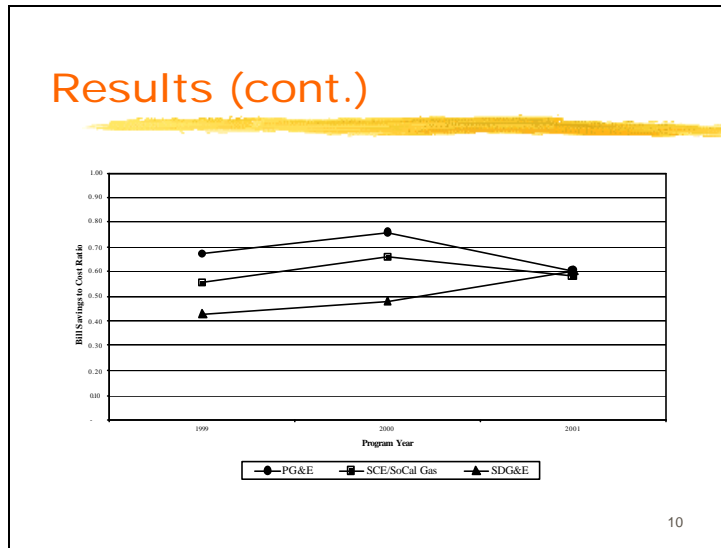
Slide 9

Results

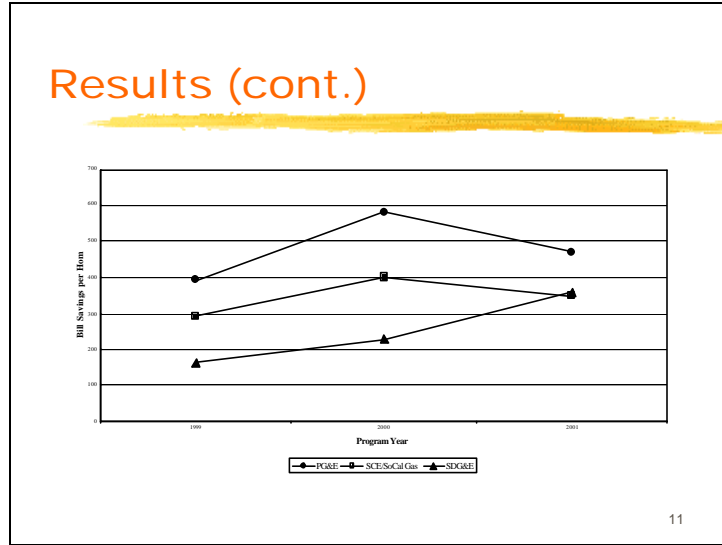
- In order to compare average customer bill savings across the state, it is useful to compare the total service by service area. For the final report analysis purposes, the SoCalGas and SCE programs were assessed as a single entity since they serve roughly the same customers.

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Slide 10



Slide 11



Slide 12

Results (cont.)

<i>Bill Savings to Cost Ratio</i>					
Program Year	PG&E	SDG&E	Combined SCE and SoCalGas	SCE	SoCalGas
1999	0.67	0.43	0.56	1.37	0.19
2000	0.75	0.48	0.66	1.72	0.15
2001	0.60	0.60	0.58	1.08	0.16

<i>Per Home Life Cycle Bill Savings</i>						
Program Year	PG&E	SDG&E	Combined SCE and SoCalGas	SCE	SoCalGas	
1999	\$ 391	\$ 162	\$ 293	\$ 180	\$ 113	
2000	\$ 581	\$ 226	\$ 400	\$ 294	\$ 107	
2001	\$ 471	\$ 359	\$ 348	\$ 240	\$ 107	

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Slide 13

Reasons for Results

- **PY1999** values shown do not exactly match the values in the 2001 Bill Savings Report due to subtleties in the methodology used to calculate the net present value stream of energy rates. Because PY1999 was fully analyzed in the 2001 Bill Savings Report, no other comment on the differences between the utilities is presented in this report.
- **PY2000** variations are mainly due to differences in installation and estimated energy savings of three measures – compact fluorescent lamps (CFLs), refrigerators, and low-flow showerheads.
- **PY2001** dissimilarities were mainly due to differences in installation rates of CFLs and refrigerators.

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Conclusions

- During the three year period from 1999 to 2001, the three electric utilities steadily increased the rate at which refrigerators were installed. SoCalGas increased the installation rate of low-flow showerheads, faucet aerators, and outlet gaskets.
- The standardization efforts covering the four utilities during this three year period appear to be bringing the bill savings to cost ratio and bill savings per home served closer together. Although the same measures are offered across the state, the primary controlling factor in per home savings is the installation rates of the measures. However, if installation rate differences are accounted for, the LIEE programs appear to be offering similar programs statewide.

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