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BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Institution Rulemaking to Examine the Commission's Energy Efficiency Risk/Reward Incentive Mechanism	Rulemaking 09-01-019 (Issued January 29, 2009)

COMMENTS OF PACIFIC GAS AND ELECTRIC COMPANY (U 39 M) ON DRAFT RESOLUTION E-4272 OF THE ENERGY DIVISION ADOPTING THE INTERIM ENERGY EFFICIENCY 2006-2008 VERIFICATION REPORT

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Dated: October 1, 2009

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I. INTRODUCTION

Pacific Gas and Electric Company ("PG&E") respectfully submits the following comments on the Energy Division's (ED) *Energy Efficiency 2006-2008 Verification Report* ("Verification Report"). While PG&E appreciates the significant effort required by the ED to issue the Verification Report, PG&E objects to its adoption and recommends that the Commission decline to use the report as "the basis for the second interim earnings claim for program activities through 2008."[1/]

Initially, PG&E notes that the ED was limited in the amount of resources it had available to devote to issuing the Verification Report. ED acknowledged that it "elected to focus its scarce EM&V resources (staff and evaluation contractors) on the more critical task of completing field work, surveys, and evaluation reports that will be used for the Final Performance Basis Report, to be completed in 2010."[2/] The Verification Report also states that it "uses the same methodologies as used to produce the results presented in the 1st Verification Report."[3/] In its comments on the 2006-2007 Draft Verification Report, PG&E identified numerous fundamental flaws in the methodologies and processes applied in issuing the report, which cast doubt on the veracity of the findings presented therein. Because the 2006-2008 Verification Report employs the same methodologies as the 2006-2007

1/ Verification Report, pp. 5-6; see Administrative Law Judge's Ruling Regarding Issuance Of The Energy Division Verification Report, issued July 30, 2009, p.4, Ordering Paragraph No.3 (clarifying that the Verification Report need not be adopted as the basis for second interim earnings claims.)

2/ *Id.* at p.6.

3/ *Id.*

Verification Report, it does not account for these flawed methodologies and omits necessary corrections. It seems clear that the Verification Report remains a work in progress and it should not serve as the basis for second interim earnings claims nor be used for informational or planning purposes as it currently exists.

Based on an initial review of the Verification Report and Energy Division's responses to PG&E's data requests[4/], PG&E identifies specific examples of uncorrected errors that continue to call into question the veracity of its findings. PG&E has prepared the following table that highlights the critical issues with the Verification Report identified in the following bullet points and demonstrates the potential impact on both energy savings and potential earnings. This table is meant to be illustrative of the effect of certain critical flaws in the Verification Report on PG&E's accomplishments and does not represent an exhaustive list of issues that require correction. Further, the table below actually showcases a value higher than PG&E's Settlement position filed May 21, 2009. The Settlement produces total 2006-08 earnings of $182 million and represents more vigorous compromises among parties and acceptance of some factual errors that PG&E continues to dispute in these comments.

4/ The Verification Report does not contain the requisite detail regarding the findings presented and the methodologies used to derive savings estimates to allow for a comprehensive review of all findings within the comment period. PG&E submitted Data Requests for more detailed information regarding certain aspects of the Verification Report, but for the most part, was referred back to the text of the Verification Report and 2006-2007 Verification Report. As such, PG&E has not had the opportunity to conduct a comprehensive review of the Verification Report, all appendices, and all documents referenced therein. Instead, PG&E reviewed a sample of findings and still found multiple errors and the use of questionable estimators and methods. A comprehensive review would likely identify additional issues requiring revision or correction, further calling into question the overall accuracy and reliability of the findings in the Verification Report.

Analysis of 2006-2008 Draft Verification Report with PG&E's Proposed Changes **(Positive Commercial Interactive Effects)**			
Total 2006 - 2008 Shareholder Earnings (Million $) per Verification Report - Positive Effects Scenario	**$96 (including $21 for 2009 claim)**		
	MW	GWH	MMTherms
2004-08 Verification Report Energy Savings	811	4,184	77
2004-05 Cumulative Savings Removed[1]	221	1,043	21
2006-08 Verification Report Energy Savings	590	3,141	56
2006-08 CPUC Goals (not including 2004-05 goals)	613	2,826	45
Percent of 2006-2008 CPUC Goals	96%	111%	125%
Earnings Rate	12%		
Performance Earnings Basis (Million $) as Stated in the Verification Report	$1,062		
Total 2006 - 2008 Shareholder Earnings (Million $) with 2004-05 Cumulative Savings Removed	**$127 (including $42 for 2009 claim)**		
	MW	GWH	MMTherms
Recommended Adjustments:			
2008 Codes & Standards[2]	20	110	1
CFL Res/Non-Res split (90/10)[3]	41	187	0
CFL ISR @ Ex-Ante (.9 Res/.92 Non-Res)[4]	62	361	0
SPC NTG @ .69[5]	2	17	3
SPC Realization Rate @ 1.00[6]	2	19	3
Removal of Residential Positive Interactive Effects[7]	-71	-79	0
Total Recommended Adjustments	57	616	7
Total 2006 - 2008 Adjusted Energy Savings	646	3,757	63
% 2006-2008 CPUC Goals achieved with adjustments	105%	133%	140%
Earnings Rate	12%		
Performance Earnings Basis (Million $)	$1,272		
Total 2006 - 2008 Shareholder Earnings (Million $) with 2004-05 Cumulative Removed and Recommended Adjustments	**$153 (including $58 for 2009 claim)**		
	MW	GWH	MMTherms
Use of Net-to-Gross Values (Ex ante with SCE adjustments)	99	498	5
2006 - 2008 Adjusted Energy Savings with NTG Adjustment	746	4,255	68
% 2006-2008 CPUC Goals achieved	122%	151%	151%
Earnings Rate	12%		
Performance Earnings Basis (Million $)[8]	$1,804		
Total 2006 - 2008 Shareholder Earnings (Million $) with 2004-05 Cumulative Removed, Recommended Adjustments, and Removal of Retroactive EUL and NTG Adjustments *(with the exception of SCE NTG adjustments)*	**$217 (including $100 for 2009 claim)**		

[1]Report improperly includes Program Years 04-05 in Cumulative Savings Calculation
[2]Report neglects to provide energy savings and PEB in 2008 attributable to Codes & Standards advocacy work
[3]Report uses incorrect 95/5 res/non-res split without an evaluation study basis
[4]Report's 0.67 value is dependent on inconclusive, faulty study that does not account for savings beyond the time of survey
[5]Report fails to include historical adjustment for self-report bias and thus, value should be 0.69 (not 0.54)
[6]Report fails to recognize that realization rates are dependent on 2006-08 programs and uses a 0.79 value, instead of default 1.00 value
[7]Report should exclude residential, positive interactive effects since they were not included in the development of the 2006-08 goals
[8]Report should not provide retroactive adjustments to NTG and EUL since doing so is inconsistent with Commission policy

Specifically, the Verification Report fails to properly account for large portions of energy savings from certain Energy Efficiency programs. In addition, the Verification Report improperly applies certain core assumptions in its analysis of utility accomplishments. PG&E discusses these errors in detail in these comments and highlights here those errors which most significantly affect the savings estimates presented in the Verification Report:

- The Verification Report improperly includes program years 2004-2005 in its calculation of cumulative goals. In Decision 09-05-037 (May 21, 2009), the Commission found, among other things, that the 2004 and 2005 data is not directly reconcilable with 2006-2008 evaluation results. Proper exclusion of this data, per D.09-05-037, results in an earnings estimate that is nearly double that presented in the Verification Report.

- The Verification Report fails to credit PG&E with savings from its 2008 Codes and Standards program. PG&E is entitled to include such savings in calculating the Minimum Performance Standard (MPS) and Performance Earnings Basis (PEB) consistent with the Energy Efficiency Policy Manual, Version 4.0 (July 2008), page 21.

- The Verification Report applies residential interactive effect impacts to adjust savings estimates. This is a significant departure from previous practices, which has a profound impact on estimates of utility accomplishments. Moreover, these interactive effects are based on computer modeling simulations and have not been vetted and tested using real world data.

- Retroactive adjustments to net-to-gross ratios and estimated useful life assumptions are inconsistent with Commission policy and decisions, and should not be revised. While prospective adjustments with corresponding goal revisions may be appropriate to inform future program design, retroactive adjustments are not appropriate for assessment of utility performance.

- The Verification Report made a significant adjustment to the residential/nonresidential split assumptions for CFLs from the previously accepted value of 90 percent residential and 10 percent nonresidential. The new proposed values were not recommended by or based on any specific values in the consultant's verification report or other approved evaluation report, but rather on a non-quantitative conclusion that the existing value was not correct.

- The realization rate being applied for 2006 - 2008 Industrial programs is based on outdated and cursory estimates that do not reflect the program's actual performance in 2006 - 2008.

In addition to existing flaws in the methodology applied, PG&E also discusses fundamental issues relating to the process of issuance of the Verification Report, which continue to create uncertainty surrounding the findings presented therein. The most significant of these issues are as follows:

- In its comments on the Draft 2006-2007 Verification Report, PG&E identified discrete errors in certain assumptions and mathematical calculations that had a significant effect on savings calculations. The present Verification Report does not account for these errors nor does it sufficiently address its rationale in disregarding corresponding utility comments.
- The established Verification Report issuance process was not adhered to and consequently restricted the opportunity for meaningful input regarding the basis for underlying assumptions and methodologies used in developing its findings.
- The Verification Report fails to provide the requisite level of detail to support a comprehensive review of its findings.

The existence of fundamental flaws in methodology and process continues to call into question the basis for the findings presented in the Verification Report. As such, PG&E objects to its adoption. The Commission should decline to use its findings as the basis for evaluating second interim earnings claims, and errors should be corrected as PG&E presents herein before the Commission considers its adoption for informational or planning purposes.

II. FUNDAMENTAL FLAWS IN METHODOLOGY USED TO CALCULATE SAVINGS ESTIMATES CALL INTO QUESTION THE BASIS FOR THE FINDINGS IN THE VERIFICATION REPORT

A. The Verification Report Improperly Includes Program Years 2004-2005 in Calculation of Cumulative Goals

The Verification Report has incorrectly included 2004-2005 program years in its estimates for cumulative energy savings goals. The Commission has stated that "[w]e agree that 2004 and 2005 data are not fully appropriate for inclusion in cumulative savings goals"[5/] and clearly articulated its reasoning for removing 2004-2005 from cumulative energy savings as follows:

- 2004-2005 programs were selected by the Commission, not the utilities (p.14);
- 2006-2008 programs have more rigorous evaluation protocols (p.14);
- Evaluation results for 2004-2005 were not reported in a fully consistent manner (p.14);

5/ See Decision 09-05-037, May 21, 2009, p.4

- 2004 and 2005 data is not directly reconcilable with 2006-2008 evaluation results (p.14); and
- The Commission does not yet have established assumptions for the treatment of post-EUL decay and savings attribution. (p.15).

The Commission chose to "exclude the imperfect data of 2004-2005" from cumulative savings goals. (p. 17) The Commission's rationale for the exclusion from the 2006-2008 program cycle is clear. Therefore, the Verification Report should be corrected to exclude 2004-2005 data from cumulative savings goals.

B. The Report Neglects to Provide Savings in 2008 For Codes and Standards Advocacy Work.

The Verification Report applies virtually the same methodology used in the 2006-2007 Verification Report to the 2006-2008 Verification Report, except for Codes and Standards. Although extending the 2006-2007 Verification Report methodology to 2008 energy savings for Codes and Standards would be consistent with the overall approach, the Verification Report fails to include them. (p. 32) Energy savings in 2008 attributable to pre-2006 and post-2005 Codes and Standards advocacy work should be included in this report, specifically savings from building standards effective October 2005 and appliance standards effective on or after January 2006, including Tier II lighting standards effective on January 1, 2008. Information available to determine these savings is presented in the Table below, along with the source for determining these savings values.

PG&E 2008 C&S Program Savings Estimates

	GWh 2006	GWh 2007	GWh 2008
2006 Title 20	21.4	22.8	34.5
Tier II lighting	0	0	60.4
2005 Title 24	12	12.9	15.1
Total	33.4	35.7	110
	MW 2006	**MW 2007**	**MW 2008**
2006 Title 20	3.3	3.6	6.45
Tier II lighting	0	0	7.85
2005 Title 24	6.4	6.5	6.1
Total	9.7	10.1	20.4

PG&E 2008 C&S Program Savings Estimates			
		GWh	
	2006	2007	2008
		MMT	
	2006	2007	2008
2006 Title 20	0.6	0.5	0.4
Tier II lighting	0	0	0
2005 Title 24	0.4	0.4	0.31
Total	1	0.9	0.71

Source:

- 2006 Title 20 and 2005 Title 24 savings from Appendix H of the 2006-2007 Verification Report, and then extrapolated for 2008 based on annual building completions and appliance sales.
- Tier II Lighting from Case Study Documentation, available on the California Energy Commission website since 2006.

In addition to energy savings, the PEB associated with Tier II lighting should be included in the calculation of the shareholder earnings.[6/] The Verification Report, Table 30 – 32, should be revised to include the 2008 energy savings and PEB associated with pre-2006 and post-2005 Codes and Standards Advocacy work.

C. The Methodology for Calculating 2006-2008 DEER Interactive Effects and the Use of Building Simulation Modeling to Estimate Unit Energy Savings have not been Sufficiently Vetted and are Likely to Produce Inaccurate Estimates.

The first and second Draft Verification Reports use gross measure savings estimates for residential facilities that include numerous changes to unit energy savings (UES) assumptions by adding in residential interactive effects. For example, UES assumptions for CFLs changed from a comparison of the original lamp output (lumens) and the new lamp output (lumens) to the much less quantifiable behavioral-based estimates of lamp wattages replaced. This significant change in metric has not been vetted or approved. Adding residential interactive effects, which were never considered in setting 2006-2008 goals or in program planning, resulted in large reductions to ex post gas achievements.

6/ Energy Efficiency Policy Manual, Version 4.0, August 2008, Section VIII., 2, d.

Residential interactive effects were applied before being calibrated or verified using data from actual residential facilities. Previous energy savings estimates and evaluations of residential energy efficiency measures have not addressed or included residential (positive or negative) interactive effects. The application of interactive effect impacts to adjust savings appeared for the first time in the 2006-2007 Verification Report. This is a significant departure from previous practices. This one change profoundly impacts the estimated energy savings for PG&E's energy efficiency portfolio. PG&E believes that prior to making such a drastic change, the simulation results upon which these changes are based must be thoroughly calibrated and evaluated using real-world, measured data.

A government commissioned case study of Department of Energy (DOE) computer simulation models[7/] states that "the energy savings for a complex system are likely to be very uncertain if the interactions of the candidate components are not accurately simulated." (pp. 103-104) Furthermore, the study states that "if the user misapplies it (e.g., provides incorrect assumptions or input data), incredible results can occur." (p. 104) The study goes on to warn that "[i]t is therefore imperative that predicted results from whole-system simulations be carefully calibrated using data from actual systems, and those who are responsible for the consequences of these simulations understand the limitations of the predicted results. " (p. 104)

Given the number of complex factors and variables inherent in modeling residential facilities, including differing vintages, variety of climates, variations in usage (e.g., opening windows), variety of control strategies (e.g., thermostat settings and locations), and variety of equipment (e.g., AC/no A/C, gas heat/electric heat), it is easy to see that a residential home is a complex system. Residences are as difficult to accurately model as larger whole buildings. Attempts to attribute interactive effects from point sources within the structure, which may be rooms away from a thermostat, are questionable. This complex system coupled with whole building simulation models make it extremely difficult to

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7/ National Research Council (U.S.), Committee on Benefits of DOE RandD on Energy Efficiency and Fossil Energy, "Case Studies for the Energy Efficiency Program," *Energy Research at DOE: WAS IT WORTH IT: Energy Efficiency and Fossil Energy Research 1978 to 2000,* National Academies Press, Washington, D.C., 2001, pp. 100-104 attribute accurate results to small, point source measures such as CFLs, or even larger ones such as refrigerators.

Therefore, modeling energy savings within an "average" home (using a computer simulation model, disaggregating the model into components and applying the results to hundreds of thousands of installations) will likely estimate inaccurate results. Given the full impact of the Verification Report to include all residential interactive effects, any simulated interactive effects should be vetted and tested using real world data (and before adjusting future energy savings goals to reflect such interactive effects).

D. Retroactive Adjustments to Net-to-Gross Ratios and Effective Useful Life Assumptions to Assess Utility Performance under the Incentive Mechanism is Inconsistent with Commission Policy.

1. Net-to-Gross Ratios Should Not Be Retroactively Applied to Assess Utility Accomplishments Under the Incentive Mechanism

Net-to-gross (NTG) ratios can be adjusted with up-to-date information for program planning purposes for new program cycles. However, updating NTG ratios on a retroactive basis would be in conflict with the Energy Division's April 1, 2009 White Paper on the Risk/Reward Incentive Mechanism (White Paper) and would punish the IOUs for achievements in market transformation. The White Paper states "[s]uccessful market transformation strategies increase free riders, which results in lower savings impacts attributed to the IOU portfolio."[8/]

Additionally, NTG ratios should not be adjusted retroactively for the purposes of assessing the utilities' performance under the incentive mechanism for 2006-2008 for the following reasons:

- While adjusted net-to-gross ratios should affect future program design, energy efficiency benefits to the economy and environment reflect gross savings from utility programs, not the recalculated net savings. Moreover, both overall greenhouse gas emissions reduction benefits (aligned with the state's efforts to meet AB32 greenhouse gas emissions limits) and procurement benefits of energy efficiency (economic supply-

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8/ White Paper, at p.15.

side resource displacement) depend on the total energy savings, not just the amount of savings absent free riders.

- Results from studies that evaluate and measure net-to-gross ratios are subjective by nature. These studies ask customers deploying EE measures to recall whether their decision to adopt such measures, sometimes more than a year before, was directly attributable to utility programs. Requiring ex post true-up of NTG ratios could undesirably skew the utilities' program designs to promote the utilities themselves instead of energy efficiency broadly.
- With the current three-year program cycle, the evaluation, measurement and verification (EM&V) cycle is not able to provide useful and timely mid-cycle feedback to the utilities (last year's delays in the EM&V cycle serve to underscore this point).
- The reassessments are inevitably asymmetrical, as they neglect positive spillover impacts both inside and outside the participant group (such as those associated with efficiency standards that the programs facilitate).[9/]

2. Estimated Useful Life Assumptions Should Not Be Retroactively Applied to Assess Utility Accomplishments Under the Incentive Mechanism

Updating estimated useful life (EUL) assumptions is important for long-term program planning purposes. However, making such adjustments within the three-year program cycle is not reasonable, as the persistence studies required to update these assumptions can take many years to complete. Efficiency program administrators cannot be reasonably expected to control EUL values and to update and adjust portfolios within a program cycle from the results of these studies. As such, EUL assumptions should not be retroactively applied for the purpose of determining utility accomplishments under the incentive mechanism. The Commission articulated this policy in D.05-04-051, which stated:

> "Once the near-term load impacts of a measure or program has been evaluated, the durability of those impacts over time is important to enable resource planners to rely on energy efficiency as a resource. We

9/ Although the Commission in D.07-10-032 has directed staff to examine and explore both participant and non-participant spillover effects, these effects have not been quantified or counted toward the utilities' 2006-2008 savings.

> have utilized persistence studies in the past to demonstrate the durability of those savings. As discussed above, during the 1994-1997 period the performance basis was tied to persistence studies over a 7-10 year measurement period. As Joint Parties point out, the completed studies have shown that the ex ante estimates of persistence were generally reliable. Based on that experience, we agree with Joint Parties' assessment: The additional incentive obtained by tying the performance basis to the persistence studies over time does not merit the lengthy and difficult administrative process necessary to create that incentive. Moreover, this approach will simplify our oversight process and shorten the timeline for administrator and implementer compensation.
>
> Persistence studies should continue to be conducted, however, to inform updates to ex ante assumptions and to feed into future program planning and resource planning assumptions. We will revisit this policy and revise it at a future date, as appropriate, if there is evidence that the results of ex post persistence studies are significantly different from the ex ante estimates. In that case, we will reassess the need to tie the performance basis to persistence studies for future programs."[10/]

While D.05-04-051 left open the possibility that the Commission might revisit EUL updates, the Commission has not revisited this decision's clear policy justification for maintaining EUL values throughout program cycles for the purposes of incentive mechanism performance assessments.

Subsequently, when D.08-01-042 determined that EUL assumptions should be updated, it did so as a means of balancing customer risk with interim incentive assessments:

> "Updating measure load impacts using the DEER database prior to the payout of interim claims in 2008 and 2009 should help to mitigate the risk of extremely large swings in earnings (positive or negative) at the final earnings true-up, which serves the interests of both utility shareholders and ratepayers."[11/]

This decision was made without regard to the "lengthy and difficult administrative process necessary" (discussed in D.05-04-051) to accurately update these values and without any real consideration of the feasibility of updating EUL values during a program cycle. Moreover, the conclusion to update EUL values was made on the basis that DEER updates would use completed

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10/ D.05-04-051, pp.52-53

11/ D.08-1-042, p. 17.

studies.[12/] Under the current three year program cycle, accurately tracking persistence of measures installed within that program cycle (which often persist for many years), completing and vetting studies in time for mid-cycle adjustments and timely incentive assessments is impossible. For these reasons, updated EUL assumptions should not be applied retroactively for purposes of assessing utility accomplishments under the incentive mechanism. Rather, it is reasonable to base incentive assessments for the 2006-08 portfolio cycle on ex ante EUL values.

E. Residential/Nonresidential Split Assumptions for CFLs Should Not be Adjusted from Previously Accepted Values until Conclusive Study Results Indicate a Specific New Value Should be Applied.

The first and second Draft Verification Reports made a significant adjustment to the residential/nonresidential split assumptions for CFLs from the previously accepted value of 90 percent residential and 10 percent nonresidential. (Section 6.5.5, pp 58-59) The new proposed values were not recommended by or based on any specific values in the consultant's verification report (Appendix A1), or other approved evaluation report, but rather on a non-quantitative conclusion that the existing value was not correct. This change from the previously accepted values had a significant impact on the savings claims for the IOUs' energy efficiency portfolios. PG&E recommends that more research be conducted to determine the correct residential/nonresidential split assumptions for CFLs. However, PG&E also recommends that until quantitative, vetted research on this subject supports specific new values, the existing values, which were used in program planning, should not be adjusted.

The Verification Report presents a list of seven reasons (p. 59) the 90 percent residential/10 percent nonresidential split cannot be validated. The report states the existing nonresidential assumption "is far less than the 10 percent that PG&E and SCE have assumed."(p. 59) PG&E does not agree with this statement, as it goes beyond the findings presented in the Cadmus "Residential Retrofit Contract Group First Draft Verification Report" ("Cadmus Report") presented in Appendix A1. The Cadmus Report presents surveys reviewed as part of the verification and states, in summary, that it can

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12/ D.08-01-042, p. 16.

not verify the 90 percent/10 percent assumption. However, Cadmus does not recommend alternative values. PG&E does not accept the Verification Report's conclusion that the revised split is warranted.

- One study reviewed by Cadmus, a process evaluation of the PG&E and SCE 2006-2008 Upstream Lighting Program, based on retail store manager self-reported estimates, indicates that the nonresidential installations range from 14 percent to 22 percent, far higher than the 5 percent proposed in the Verification Report. (Appendix A1, p 15)
- The Residential Customer survey from the 2004-2005 Itron Single Family Rebate (SFR) Program is cited by Cadmus as indicating that "7% of residential customers purchase CFLs from retailers that eventually get installed in nonresidential applications." (Appendix A1, p 15)
- The Cadmus Report also states that in the first wave of CFL user telephone survey findings conducted as part of the evaluation of the 2006-2008 Upstream Lighting program, "residential customers indicated that 7 percent of the CFLs purchased at retail locations were eventually installed in nonresidential applications." (Appendix A1, p 15)
- Only one study cited by Cadmus, a survey of commercial customers from the 2004-2005 Express Efficiency Program Evaluation, would support a value as low as the proposed 5 percent nonresidential value in the Verification Report. However, PG&E believes this study is not applicable because it addressed only lighting equipment retrofits, not routine replacements of burned out lamps.

These analyses show there is considerable uncertainty in the residential/nonresidential split requiring further investigation. The decision to select the lowest nonresidential percentage value, supported by one of the four studies, is nothing more than "fixing the facts around the policy." Until a robust estimate is obtained, modification of the existing split is simply replacing one uncertain value with another. Neither percentage value can be adequately supported by recent studies. However, the 90/10 split was used to develop the 2006-2008 programs and should continue to be used until a new split is determined based on vetted and valid studies.

F. The 67 Percent In-service Rate (ISR) Applied to the Upstream CFL Incentive Program is Too Low, Thereby Underestimating Savings.

PG&E's analysis of published evaluation study results, including both the Itron "2004-2005 Statewide Residential Retrofit Single-Family Energy Efficiency Rebate Evaluation" ("Itron Evaluation") and the Cadmus "Residential Retrofit Contract Group First Draft Verification Report" ("Cadmus Report"), indicate that the 67 percent ISR used in the Verification Report is too low, significantly underestimating program savings. (Appendix A1, Table 8, p. 16) Specifically, PG&E identified the following issues:

- The Itron Evaluation was published in late 2007 and included surveys performed during the 2006-2008 program cycle, albeit with customer data from the 2004-2005 program. These results show an ISR of 76 percent. However, this study contained flaws in the survey methodology by failing to ask survey participants what they planned to do with all bulbs bought, instead of just the last one purchased.
- The Cadmus Report shows an ISR of 67 percent, but excludes installed lamps that were burned out. The ISR of 67 percent implies that burned out CFLs, some of which had been installed as long as 2.5 years, but which later burned out, yielded zero savings. Clearly this is incorrect. CFLs that were burned out prior to the survey may have been heavily used or may have burned out due to other reasons. The study does not address this important issue.
- The Cadmus Report's ISR of 67 percent applied in the upstream CFL savings calculations also includes many survey results from customers who were surveyed too soon after purchase. Based on the data contained in Appendix A1, PG&E infers that surveying customers too soon after purchase results in an ISR that does not accurately represent real world conditions. Consumers must be given a chance to install recently purchased CFLs. Surveys conducted less than three months after purchase should be excluded from the ISR.
- The Verification Report has failed to create a methodology for counting savings from measures not installed at the time of survey. Those methodologies should be vetted and adopted before ex ante values are revised.

Until a study can provide additional information on 2006-2008 programs for CFLs and on the ultimate disposition of the CFLs, PG&E recommends using Commission approved ex ante values.

G. Applying 2006-2007 Verification Findings to 2008 Program Accomplishments is Not Appropriate for Some Programs.

Realization rates are normally used to adjust a program's energy savings based on EM&V studies performed on data from the time period in which the program was implemented. Applying a realization rate from a different portfolio period is inappropriate since the current program is implemented differently from the prior program years, resulting in a different realization rate. For the 2006 – 2008 portfolio, the EM&V studies scheduled to be completed in 2010 are the appropriate results that should be applied to the 2006 – 2008 accomplishments.

Some programs have experienced significant changes in 2008 as compared to 2006-2007. As a result, 2008 estimates (p. 6) should be adjusted for these changes.

1. Upstream Lighting

- Product activity between bare spiral CFLs and advanced CFLs changed from 87 percent/13 percent in 2006 to 77 percent/23 percent in 2008. This could have a dramatic effect on ISRs since it is unlikely purchasers of more costly and difficult to find advanced CFLs will not install them. (From tracking data provided with quarterly reports)

2. Nonresidential Retrofit

- Improved accuracy of savings calculations, due to reduced reliance on customer estimates and increased reliance on PG&E technical staff and contractors is expected to have improved project and program realization rates in 2008.
- A program improvement that more clearly shows the link between customer decisions and program activity is expected to have an increased Total Resource Cost (TRC) ratio, reduced free ridership, and increased net realization rate.
- Increased capability to deliver new, large projects, due to increases in third party implementer activity and Industrial program staffing may impact realization rates and net-of-free-riders.

- The realization rate applied for industrial programs is not based on clear rationale. The realization rate being applied for 2006 - 2008 (p.57) is based on outdated and cursory estimates that are not reflective of the Industrial program's performance in 2008. Between 2004-2005 and 2008, there have been notable changes in program operation, activity, and project mix that would be reasonably expected to result in a different realization rate.

In summary, the Verification Report could more accurately estimate savings by weighting the application of 2006-2007 results to key 2008 parameters.

H. The Unit Energy Savings Values in DEER for Refrigerant Charge and Airflow/Duct Test and Seal (RCA/DTS) are Questionable

The Verification Report does not adequately address HVAC measures. It states that

> "DEER provides multiple base gross savings values for measures such as duct sealing and refrigerant charge and airflow. In determining which of these values to use when assigning a UES, Energy Division decided to select the 'typical' value in DEER rather than calculating a value based on a combination of the typical and 'high' case values." (p 60)

The "typical" or "high" value language contained in the Verification Report only pertains to the RCA measure and does not address the DTS measure. The DTS measure should be based on the percent leakage reduction of the duct system. Additionally, if different values are going to be assigned to the measures based on "typical" and "high," a better definition for each value is necessary for both RCA and DTS. It is also unclear what baseline was used to calculate energy savings. PG&E is concerned about the baseline for all the DEER values in this measure category as the research is incomplete, and it is unclear where these values came from.

I. The Net-to Gross for Industrial Programs Understates Savings.

In its comments on the Draft 2006-2007 Verification Report, PG&E pointed out the error of omitting a self-report adjustment used in previous Commission approved studies.[13/] Nonetheless, the present Verification Report continues to leave out, without justification, the 0.15 net-to-gross adjustments for industrial programs, in use since 2002.[14/] As stated in PG&E's earlier comments, the failure to include this self-report bias adjustment produces "a biased result." This adjustment is comprised of a 0.10 adder as an acknowledgment that the method and questions used to ascertain net-to-gross give downward biased results and a .05 adder to net-of-free-riders as a conservative estimate of additional, direct program effects on participant savings. The values used in the Verification Report should be revised to provide a more accurate estimate of energy savings for industrial programs.

In addition, in a number of cases for the industrial new construction measure Process-Custom, the Verification Report has used a net-to-gross of 0.54 (the appropriate value for industrial retrofit projects) rather than the correct net-to-gross of 0.84 for industrial new construction. This error should be corrected.

J. Realization Rates and Savings Calculations Referenced in Table 7 Lack Sufficient Detail to be Verified.

Table 7 (p. 27) of the Verification Report presents calculations of "Realization Rates" for various utility programs. The Verification Report does not provide sufficient detail for PG&E to assess the methodology used and to verify the calculations presented. Typically "gross realization rate" is gross ex post/gross ex ante, and "net realization rate" is net ex post/net ex ante. However, for the Savings By Design program, Table 7 includes some net ex post/gross ex ante "realization rates." Footnote 32 seems to address this issue, stating, "For Savings by Design only, the missing portion of ex ante savings was credited to SCE and PG&E (see Appendix C for calculations)." As a preliminary

13/ Comments on Pacific Gas and Electric Company (U 39-M) on Energy Division's Draft Energy Efficiency 2006-2007 Verification Report, December 15, 2008, pp 6-7.

14/ Energy Division, however, may consider adding a self-report adjustment for the final PEB calculation. Verification Report, p. 101.

matter, it is unclear what is meant by "missing portion of ex-ante savings." In addition, Appendix C does not reference any Savings by Design programs. Therefore, PG&E is unable to determine what calculations were performed or to verify if savings were accurately counted.

K. The Verification Report is Not Correctly Accounting for 2004-2005 Residential and Nonresidential New Construction Program Savings.

In Section II. A. above, PG&E notes that 2004-2005 energy savings should not be included as part of the cumulative savings for this Verification Report. However, the Verification Report also has not accurately reported energy savings for the 2004-2005 Residential and Nonresidential New Construction programs as it has omitted commitments for new construction projects to be paid in subsequent years. Those commitments were also excluded from the 2004-2005 impact evaluations. Per Decision 05-04-051 (p. 56), these commitments should count for 2004-2005 and may not be counted again when the projects are completed and paid in a later program cycle. PG&E requests that these commitments be properly credited to the 2004-2005 program energy savings and that all 2004-2005 energy savings be removed from the cumulative savings for this Verification Report.

L. Residential Retrofit Verification Rates Should be Updated.

PG&E initially identified apparent errors in the verification rates for attic and wall insulation while at one of the workshops following the issuance of the Draft 2006-2007 Verification Report. PG&E has since had further discussions with the evaluators and PG&E understood that revised verification rates had been established. However, no changes were made in this Verification Report or to Appendix A1. PG&E requests that revised verification rates be incorporated.

III. FLAWS IN THE PROCESS OF ISSUING THE VERIFICATION REPORT CREATE UNCERTAINTY SURROUNDING ITS FINDINGS

A. The Verification Report Does Not Account for Previously-identified Errors.

The Verification Report "uses the same methodologies as used to produce the results presented in the 1st Verification Report."[15/] In its comments on the 2006-2007 Draft Verification Report, PG&E

15/ *Id.*

identified numerous fundamental flaws in the methodologies and processes applied and findings presented. Most of these errors have yet to be corrected and cast doubt on the veracity of the findings presented in the Verification Report.

While PG&E specifically addressed the effect of many errors in the Draft 2006-2007 Verification Report in its initial written comments, few were acted upon. The Verification Report failed to sufficiently explain the rationale for simply discarding these written comments. Typical responses in the Verification Report include: "ED may consider this recommendation in future DEER updates" (p. 81); or "[n]o changes were made" without providing any explanation for why a particular comment was discarded (p. 82). The Verification Report acknowledged that it failed to include certain necessary corrections, stating, "ED will make sure this issue is reviewed and corrected for the final report." (p. 103) Such comments make it evident that the Verification Report is still a work in progress. Given the scope of issues yet to be addressed in the Verification Report, its findings cannot be held out as a measure of utility accomplishments for the 2008 program year.

B. The Verification Report Issuance Process Was Not Adhered To.

The Verification Report Process calls for "a conference by telephone or in person"[16/] where stakeholders can discuss the draft Verification Report, raise questions with those who prepared the report and receive responses. This conference never took place. As a result, the findings in the Verification Report remain plagued by the same lack of certainty as those in the initial 2006-2007 Draft Report and should not be used as the basis for evaluating second interim savings claims.

C. The Verification Report Fails To Provide The Requisite Level Of Detail To Support Its Findings.

The Commission decided that final verification reports be adopted through Commission resolution, which "should include detailed information regarding the underlying assumptions used and supporting documentation that provides the basis for those assumptions."[17/] Due to the use of unvetted modeling and unpublished draft studies as discussed above, the IOUs simply lack the necessary

16/ See D.07-09-043, Ordering Paragraphs 8 and 9 (pp 223-224) and Attachment 7, Step 4

17/ See *Id.* at p. 26 [Finding of Fact 12].

information to evaluate the assumptions and methodology relied upon to support the findings in the Verification Report and address all critical issues in the given timeframe.[18/]

IV. CONCLUSION

PG&E appreciates the opportunity to submit these comments on the Energy Division's *Energy Efficiency 2006-2008 Verification Report*. PG&E recognizes the amount of effort it took to produce this report. However, given the flaws in the report as described in these comments, the report is still too preliminary to be used to inform the determination of any Risk Reward Incentive Mechanism outcome as it currently exists. PG&E therefore recommends the Commission not approve the Verification Report.

Respectfully Submitted,

By: /S/
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Dated: October 1, 2009

[18/] PG&E addressed the use of modeling and draft studies in its comments on the 2006-2007 Verification Report as well. (See PG&E Comments on 2006-2007 Verification Report at pp.3-4.)

CERTIFICATE OF SERVICE BY ELECTRONIC MAIL OR U.S. MAIL

I, the undersigned, state that I am a citizen of the United States and am employed in the City and County of San Francisco; that I am over the age of eighteen (18) years and not a party to the within cause; and that my business address is Pacific Gas and Electric Company, Law Department B30A, 77 Beale Street, San Francisco, CA 94105.

I am readily familiar with the business practice of Pacific Gas and Electric Company for collection and processing of correspondence for mailing with the United States Postal Service. In the ordinary course of business, correspondence is deposited with the United States Postal Service the same day it is submitted for mailing.

On August 26, 2009, I served a true copy of:

COMMENTS OF PACIFIC GAS AND ELECTRIC COMPANY (U 39 M) ON DRAFT RESOLUTION E-4272 OF THE ENERGY DIVISION ADOPTING THE INTERIM ENERGY EFFICIENCY 2006-2008 VERIFICATION REPORT

[XX] By Electronic Mail – serving the enclosed via e-mail transmission to each of the parties listed on the official service list for **R.09-01-019**, **R.06-04-010**, and consolidated dockets under **A.08-07-021**.

[XX] By First-Class Mail, postage prepaid, to each party on the official service list not providing an email address.

I certify and declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed on this 26th day of August 2009 at San Francisco, California.

THIS DOCUMENT WAS NOT FILED ONLY SERVED ON AUGUST 26, 2009, SO THIS CERT. OF SERVICE IS FOR THE RECORD THAT IT WAS DULY SERVED ON ALL PARTIES, PER INSTRUCTIONS FROM ALJ.THOMAS PULSIFER.

/S/
JENNIFER S. NEWMAN

DATED: October 1, 2009