Decision **ALTERNATE PROPOSED DECISION OF COMMISSIONER PEEVEY** (Mailed 11/16/2010)

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

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

DECISION REGARDING THE RISK/REWARD INCENTIVE MECHANISM EARNINGS TRUE-UP FOR 2006-2008

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DECISION REGARDING THE RISK/REWARD INCENTIVE MECHANISM EARNINGS TRUE-UP FOR 2006-2008

1. Introduction

This decision resolves the final true-up of Risk/Reward Incentive Mechanism (RRIM) earnings for the 2006-2008 cycle for savings achieved due to energy efficiency programs administered by Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company (the IOUs). As adopted in Decision (D.) 07-09-043, RRIM was designed to offer financial incentives or penalties as a function of utility success in achieving and surpassing adopted energy savings goals.

In this decision, we complete the true-up of these interim awards, and determine whether additional incentive earnings are due, or alternatively whether penalties apply. The IOUs have already been awarded interim incentive earnings totaling $143.7 million for the first two years of the 2006-2008 cycle (2006 and 2007).[1] These amounts were awarded as incentives based on interim review of the IOUs' achievements of energy efficiency savings during 2006-2008. Based on the true-up results reviewed herein, and summarized in Appendix A, we determine that the IOUs' 2006-2008 energy savings achievements are sufficient to qualify for total incentives of $206,378,244 million. Subtracting the interim rewards the IOUs have already received leaves an additional increment of $62,683,689 million in additional incentive payments to

[1] A first interim installment was awarded in D.08-12-059, and a second installment was awarded in D.09-12-045. Together, these interim payments total $143.7 million.

be provided to the utilities. These awards constitute the final payment for the 2006-2008 cycle.

In calculating the final round of incentive payments, we have made significant modifications to the mechanism that was originally adopted in D.07-09-043. Specifically, rather than assessing the performance of the utilities' energy efficiency programs based on updated parameters, as was our original intent, we now modify the mechanism such that the performance against the goals as well as the total savings attributed to the utility programs for purposes of determining incentives are calculated using the parameters that were in place at the time the Commission approved the utility energy efficiency portfolios. Because this increases the risk to ratepayers of providing incentives for savings that based on updated assumptions may not be attributable to the utility programs (and conversely, reduces the risk to the utilities of incurring penalties) we also make a commensurate change in the shared savings rate applied to the performance earning basis, reducing it from the 9% and 12% levels adopted in D.07-09-043, to 7%.

Such changes to the mechanism as it applies to the 2006-2008 period are not only warranted because of our experience with this program, but are also consistent with scope of the OIR issued on February 9, 2009, establishing this proceeding. We believe the changes to the mechanism we adopt today are warranted, given ongoing concerns about the substantial, and unanticipated swings in a number of the key parameters Energy Division has observed when performing the updates to these factors.

The incentive mechanism reinforces our strong commitment to the goal of decreasing overall future per capita electricity consumption in California by the customers of the IOUs. It cannot be disputed that such reductions benefit the

IOUs' customers and society at large. Moreover, we do not address herein what incentives earnings may be awarded for energy efficiency achievements accomplished during 2009, or how incentives earnings may apply for the next program cycle (2010-2012). We defer those matters to a subsequent decision in this proceeding, recognizing the need for timely resolution of such issues.

When we opened this rulemaking, we were cognizant of the contentious character of the prior proceeding with respect to calculating and awarding incentive earnings to the IOUs.[2] This controversy has continued unabated. When applied, the RRIM methodologies for assessing incentive earnings have proven far more complex and contentious that was originally contemplated.

In this proceeding we sought to develop a new framework for the determination of 2006-2008 energy efficiency incentives.[3] In developing this new framework, we left open the possibility of reexamining and changing as warranted the mechanism originally adopted in D.07-09-043. Specifically, in the OIR issued February 4, 2009, we stated, "We see a need to reconsider the RRIM earlier than in 2011 as anticipated in D.07-09-043. The controversies raised concerning the first Verification Report show that methodologies of the RRIM process are quite complex and are not as easily or as timely resolved as we had hoped. We believe it is necessary to consider a more transparent, more streamlined and less controversial RRIM program. This may require making

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[2] This rulemaking is the successor to Rulemaking (R.) 06-04-010, our inquiry into post-2005 energy efficiency policies, programs, evaluation, measurement and verification (EM&V), and related issues. We issued a number of decisions in R.06-04-010 on topics ranging from energy efficiency goals (e.g., D.08-07-047) to the RRIM.

[3] Order Instituting Rulemaking (OIR) 09-01-019 at 5.

small but significant changes to the existing RRIM, or may require wholesale adoption of a new incentive mechanism. Any new or revised RRIM must continue to provide incentives to utilities to provide the maximum verifiable and socially-desirable level of energy efficiency programs and services, while protecting ratepayers through necessary cost containment mechanisms.

In this rulemaking, it is our intent to first develop a new framework for the interim review of 2008 energy efficiency activities and the final review of 2006 through 2008 energy efficiency activities (now set for 2010)."

We further stated "It is our intent to adopt a new framework for the review of the remainder of 2006 through 2008 energy efficiency activities in a timeframe consistent with interim payments for 2008 no later than December 2009, and any final payments for 2006 through 2008 no later than December 2010."[4]

The modifications reflected herein are made with the intent of reforming a mechanism that has proven unwieldy in ways that we find compromise its central purpose, namely motivating the utilities to embrace energy efficiency as a core part of their business. This is a critical objective given the central role energy efficiency must play in California's energy future, particularly as the state seeks to dramatically reduce the carbon intensity of its energy system, pursuant to Assembly Bill 32. Energy efficiency remains one of the most cost effective approaches to reducing carbon emissions and providing energy services, which is recognized in the state's loading order and in the California Air Resources Board's AB32 Scoping Plan. In order to be effective, an incentive mechanism for

[4] OIR to Examine the Commission's Energy Efficiency Risk/Reward Mechanism, at 4-5.

energy efficiency investments by the IOUs must provide rewards or impose penalties on the basis of factors that are reasonably within the control of the entity to which it is being applied. As described in more detail below, we find that the RRIM as adopted and implemented to date has not reflected this fundamental criterion of an effective incentive mechanism. In particular, we find that the expectations regarding the ability of the utilities to modify their portfolios in response to changes that were ultimately found to have taken place over the three-year program cycle were unreasonable, particularly given the availability of information regarding these changes and their magnitude. The modifications we now make in this decision, in light of our experience, will result in an appropriate level of incentives based on what the utilities could have been reasonably expected to know and respond to during the program cycle. By adopting this approach we ensure the mechanism remains effective in aligning utility interests with the resource priorities of the state. Failure to make the modifications adopted herein, we believe, will undermine the credibility of the incentive mechanism to the utilities and the investment community and compromise its ability to effectively motivate the utilities to aggressively pursue energy efficiency going forward. If the utilities are subject to substantially reduced incentives or penalties based on factors they could not be reasonably expected to anticipate or respond to, they will have little reason to embrace energy efficiency as a core part of their business models. Such an outcome would be contrary to the intent of the incentive mechanism and run counter to the long term interests of ratepayers and the state.

Although we have repeatedly encouraged parties to pursue settlement discussions of these protracted issues, the resulting efforts to seek resolution have not been successful. We have also explored possible alternative policy

assumptions to streamline the derivation of incentive amounts while maintaining the integrity of the process.

We continue to believe that the Commission should pursue reforms to the existing mechanism that accomplish the Commission's energy efficiency goals while avoiding the protracted controversies over technical methodologies that have characterized the RRIM process. We intend to address needed reforms in the prospective redesign of the RRIM in the next phase of this proceeding.

2. Procedural Background

This phase of the proceeding finalizes the true-up of incentives (or penalties) for achievements in energy efficiency savings for the 2006-2008 cycle. Previous interim incentive earnings for the 2006-2008 cycle were awarded in Decision (D.) 08-12-059 and D.09-12-045, respectively. Parties participating in the proceeding, in addition to the Investor-owned Utilities (IOUs),[5] were the Division of Ratepayer Advocates (DRA), The Utility Reform Network (TURN), Natural Resources Defense Council (NRDC), and Women's Energy Matters (WEM). The record developed for this phase of the proceeding consists of written comments by parties, together with work products produced by the Commission's Energy Division, namely, the Energy Efficiency Evaluation Report and the Scenario Analysis Report. The record also includes the scenario analysis presented by the IOUs in filed comments. The IOUs filed supporting calculations on July 16, 2010, identifying assumptions utilized in their scenario.

[5] The IOUs are Pacific Gas and Electric Company (PG&E), San Diego Gas & Electric Company (SDG&E), Southern California Edison Company (SCE), and Southern California Gas Company (SoCalGas or SCG).

As discussed in D.07-09-043, the Risk/Return Incentive Mechanism (RRIM) earnings claims process was originally expected to be ministerial. Incentive earnings were to be awarded based on the Energy Division's independent evaluation of savings accomplishments. Substantive earnings claim issues were to be resolved through adopted procedures for vetting of the Energy Division Evaluation, Measurement, and Verification (EM&V) Reports. Under circumstances where disposition of EM&V issues might require more than ministerial action under General Order 96-B, Energy Division was to prepare a Commission resolution. In D.08-12-059, the Commission revised this procedure stating that:

> Beginning with the draft verification report that was issued on November 18, 2008 and going forward, we will require that Energy Division issue these reports via draft resolution for consideration and adoption by the Commission before those reports are used to determine incentive payments or penalties under the RRIM. This direction applies to both the verification reports used to assess interim claims as well as those used for the final true-up. These resolutions should include detailed information regarding the underlying assumptions used and supporting documentation that provides the basis for those assumptions. (D.08-12-059 at 21.)

Pursuant to the schedule for the true-up phase of this proceeding set in D.09-12-045, the Energy Division issued its 2006-2008 draft Energy Efficiency Evaluation Report on April 15, 2010, culminating nearly three years of field-based evaluation research. The Report was issued in final form on July 9, 2010, incorporating corrections and responses to parties' comments.

The Final Energy Division Evaluation Report identified the IOUs' energy efficiency savings, but did not address the calculation of RRIM earnings. Accordingly, since RRIM earnings were not addressed, no resolution was issued in connection with the Report's issuance. We have considered the Energy

Division's evaluated results, however, within the record of this proceeding, incorporating parties' comments on the process and results of the Energy Division Report.

On April 8, 2010, an Assigned Commissioner's Ruling (ACR) outlined a process to develop the record for this true-up of incentive earnings using the Evaluation Reporting Tools/Database (ERT). Parties filed comments in response to the ACR on April 20, 2010. A subsequent ACR, issued on May 4, 2010, provided for comments on the Energy Division Scenario Analysis Report which set forth incentive earnings and/or penalties calculations under a range of scenario assumptions. Parties filed comments in response to this ACR on May 18, 2010, and reply comments on June 11, 2010. The IOUs presented a separate scenario analysis in their comments and filed supporting calculations underlying their scenario proposal on July 16, 2010. DRA filed comments on these supporting calculations on July 26, 2010. The IOUs filed a response on August 2, 2010.

In D.09-12-045, the Commission also directed parties to convene a settlement conference "to enter into further settlement discussions to seek agreement on a 2010 final true-up of incentive earnings for each utility that reasonably ties incentives to actual performance consistent with the policies adopted in [D.09-12-045]."

In this regard, the Commission stated that:

> …while the Final Performance Report may provide a context for settlement discussions, we encourage parties to explore the possibility of a 2010 true-up settlement based upon simplified assumptions or metrics not necessarily tied to the detailed and minute level of calculations embodied in the Final Performance Basis Report for the 2006-2008 cycle. In this manner, the schedule for comments and adoption of the Final Performance Basis

> Report may proceed on a separate, but related track to the schedule for a settlement, or related dispute resolution processes to determine the final 2010 true-up of incentive amounts for each utility. (D.09-12-045 at 72.)

A settlement conference was convened on June 27, 2010, but no settlement was reached. The parties filed a further round of comments on July 9, 2010 with reply comments on July 23, 2010. The record in this proceeding thus establishes a basis for consideration of data in the Energy Division Report, along with the various RRIM earnings scenario analyses, and parties' comments in evaluating how to resolve the RRIM earnings true-up.

3. Principles Governing the RRIM True-Up Process

As a basis for finalizing the incentive true-up, we modify a number of the elements that had been adopted in D.07-09-043. The purpose of the RRIM is to offer incentives to the IOUs in a manner that will encourage and compel them to meet and exceed Commission goals for energy efficiency savings, and to extend California's commitment to making energy efficiency the highest energy resource priority. Under the mechanism rewards are earned or penalties incurred as a function of the IOU's success in achieving adopted energy savings goals.

More specifically the magnitude of rewards and penalties is based on some share of the avoided costs that energy efficiency measures are determined to provide. D.07-09-043 adopted an earnings/penalty curve that established the level of efficiency savings attributed to the utility programs relative to the adopted energy efficiency goals that result in penalties or rewards, as well as the magnitude of those penalties or rewards. Incentive rewards are earned as a shared percentage of the net cost savings achieved due to deployment of energy efficiency measures, designated as the performance earnings basis (PEB). The

shared savings rate (SSR) varied depending upon the extent of success in meeting or exceeding adopted goals. If the utilities' programs realized savings greater than 85% but less than 100% of the energy efficiency goals, the SSR applied to the PEB would be 9%. If the utilities' programs realized savings greater than 100% of the energy efficiency goals, the SSR applied to the PEB would be 12%. Maximum limits on incentive earnings and penalties for all IOUs were capped at $450 million for the 2006-2008 cycle.

In D.07-09-043, we prescribed a process to update, and verify the *ex ante* (pre-installation) assumptions of energy efficiency savings[6] as programs are implemented during three-year program cycles. First, the utilities report the number and type of measures installed and services rendered, along with associated program costs. This reporting was to occur during the first quarter of each year covering the prior year's accomplishments.

Next, Energy Division and its contractors review this information, conduct field research, and release reports evaluating the costs of installations and estimate related savings achieved. Program costs were validated through an audit conducted by the Commission Audit Division. Verification reports were to

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[6] *Ex ante* refers to assumed energy savings associated with a particular energy efficiency measure or equipment prior to installation. Thus, *ex ante* refers to using program metric assumptions based on past program performance. *Ex ante* measurement relies on engineering estimates or the results of *ex post* savings measurement (e.g., load impact studies) from previous program years or other program experience. (See D.05-04-051 at 35.)

be released annually during the month of August following the end of each calendar year.[7]

At the end of the program cycle, the Energy Division evaluation results were to be used to true-up the *ex ante* estimates of savings with respect to the number and type of measures installed, and with the associated program costs. Other parameters that were evaluated with respect to measure savings include: (1) per-unit energy savings and peak demand reductions, (2) expected useful lives for installed measures/equipment and (3) net-to-gross (NTG) ratios.[8]

Energy Division and its consultants evaluate these parameters on an *ex post* (post- installation) basis with a variety of field research methods. A true-up of portfolio savings and PEB for the full program cycle was to be based on the parameters evaluated by Energy Division.

The RRIM provides opportunities for earnings (or risk of penalties) at interim points for each three-year program cycle.[9] Under the adopted process,[10]

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[7] See *ALJ Ruling Adopting Protocols for Process and Review of Post-2005 EM&V activities*, January 11, 2006. Energy Division's Verification Report schedule was modified by Administrative Law Judge (ALJ) ruling on January 2, 2007. For the 2006-2008 program cycle, verification of 2006 installations and program costs were combined with the report on 2007 accomplishments. Both were released concurrently.

[8] NTG ratios are used to discount savings associated with program to reflect the existence of "free riders," that is, customers who would have installed the energy efficiency measure or equipment without the utility's financial incentive (e.g., rebate). NTG ratios are estimated at the start of program implementation, and EM&V studies are designed to evaluate those ratios on an *ex post* (post-installation) basis, using control groups and statistical regression analyses, among other approaches.

[9] D.08-01-042, citing D.07-09-043 Conclusion of Law 7 at 212.

[10] See D.07-09-043, Conclusion of Law 7 at 212, and Attachments 6 and 7.

each IOU is eligible for two interim incentive installments, and a final true-up. Interim RRIM earnings were based on savings achievements measured using *ex ante* assumptions subject to a holdback of a portion of the claim, pending *ex post* true-up.

The Commission's rationale for adopting these true-up provisions was premised on the idea that the utilities should be evaluated, and incentive payments/penalties determined, on the basis of energy savings that actually materialize,[11] recognizing that over the three year cycle, many of the parameters underlying the portfolios developed by the utilities are subject to change. Implicit in this approach is the notion that over this same period, the utilities would be able to observe many of these changes and modify their portfolios accordingly. As described in more detail below, experience has taught us that it was not possible to operationalize the mechanism in a manner that would actually allow such modifications to occur in a timely manner. This aspect of the mechanism proved to be a singular challenge.

In December 2008, we awarded the IOUs a first installment of RRIM earnings for 2006-2007 mid-cycle performance. In D.09-12-045, the IOUs received a second installment for the 2006-2008 program cycle. The total interim incentive payments totaled $143.7 million, as set forth below:

[11] D.07-09-043, at 13.

Table 1: Interim 2006-2008 RRIM Earnings Previously Awarded

Utility	First Installment (Authorized in D.08-12-059) [A]	Earnings Rate Used For Second Installment	Maximum Earnings (PEB * Earnings Rate) [B]	Maximum Earnings less 35% holdback [C]	2nd Installment of Interim Earnings [C]-[A]	Holdback Amount Subject to Final True-Up [B] – [C]
PG&E	$41,500,000	12%	$115,277,868	$74,930,614	$33,430,614	$40,347,254
SCE	$24,700,000	12%	$77,465,151	$50,352,348	$25,652,348	$27,112,803
SDG&E	$10,800,000	12%	$17,077,803	$11,100,572	$300,572	$5,977,231
SCG	$5,200,000	12%	$11,247,724	$7,311,021	$2,111,021	$3,936,703

The interim EM&V reports produced by Energy Division have been the subject of considerable controversy. Due to delays associated with the first interim report, the first installment of RRIM incentives was based on IOU self-reported results subject to a 65% hold back. Although we utilized self-reported utility claims, we did so only because the First Verification Report was not available in time. The holdback of 65% reflected increased uncertainties associated with self-reported claims.

The Commission upheld the validity of the Energy Division Second Interim Verification Report in D.09-12-045 in determining the dollar value of energy savings subject to the RRIM calculation for the second interim claim. The Commission formally adopted the Energy Division Second Verification Report by resolution on October 15, 2009. The resolution incorporated reference to Verification Report's extensive log of corrections to modeling tools and inputs[12] and itemized responses to criticisms or comments posed by stakeholders.[13]

[12] See Second Verification Report, Section 8.2.

[13] *Id.*, Section 9.2.

The second installment of incentive earnings was based on net benefits measured by the Energy Division Verification Report, with additional adjustments for following factors:

(1) Both positive and negative interactive savings effects were applied;

(2) The cumulative effects of 2004-2005 savings goals were excluded;

(3) Savings goals were adjusted for interactive effects that were not originally considered in setting 2006-2008 goals;

(4) A shared savings rate of 12% was used by applying the IOUs' original unmodified *ex ante* assumptions in comparing the IOUs' reported savings achievements relative to Commission goals;

(5) The NTG ratio applied for savings attributable to SCE's residential lighting program was adjusted to reflect SCE's specific implementation approach to this program; and

(6) The realization rate applied to SDG&E's Energy Savings BID program and SoCalGas' Local Business Energy Efficiency program was adjusted to reflect the unique nature of those programs as compared to more generic statewide programs.

4. Framing of the Issues for the True-Up

As a framework for determining the true-up of incentive earnings for the 2006-2008 program cycle, parties raise two fundamental disputes: (1) the amount of assumed net dollar benefits subject to the incentive calculation, and (2) the applicable percentage allocation of those benefits to be shared between ratepayers and shareholders. Based on these differences, parties disagree as to whether the IOUs are entitled to additional incentive earnings, or whether penalties apply.

The assigned Commissioner circulated a range of incentive earnings scenarios as set forth in the Energy Division "Scenario Analysis Report" (provided by ACR dated May 4, 2010).

This Report illustrated the sensitivity of RRIM earnings over a range of different policy assumptions calculated utilizing the ERT.[14] Each scenario incorporated variations showing incentive impacts assuming:

a) shared savings rate of 9%;

b) shared savings rate of 12%;

c) results compared to 2006-2008 goals;

d) reduced therm goals by 22% for SDG&E and 26% for PG&E;

e) recognition of 100% of savings from Codes and Standards (C&S) Advocacy accomplishments; and

f) Inclusion of interim RRIM awards as additional program costs.

These assumptions were highlighted to illustrate the effects of various policy disputes previously at issue in interim incentive proceedings. The scenarios drew data from different sources utilizing the ERT as a template, including Energy Division evaluation findings, along with the IOUs' self-reported data.

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[14] The ERT is a combination of tools and processes that work in concert to calculate 2006-2008 energy efficiency portfolio performance results.

The ERT core features were used to compile and evaluate alternative scenarios and resulting RRIM earnings based upon changes to key parameters. The ERT aggregates and reports efficiency savings performance at the level of measure group, program, and total portfolio. Based on specified parameter assumptions, the ERT generated scenario runs showing corresponding RRIM earnings.

The RRIM earnings calculated under these scenarios range from less than $1 million to almost $400 million. The scenarios can be grouped into the following general categories:

(1) Scenarios S2 and S3 -- "Utility Reported Net Savings"

These scenarios apply *ex ante* values for all key parameters and exclude updating based on EM&V evaluation studies. These scenarios result in total earnings of either about $400 million (all S2 results) or around $300 million (S3 results with updated installation rates). Scenario S2 calculates the results using IOU-reported net savings based on their 4th quarter tracking database, with IOU-reported net-to-gross ratios without updating for evaluation field research. Scenario S3 utilizes a similar data set as Scenario S2, but with IOU-reported quantities adjusted based on evaluated installation rates.

(2) Scenarios S4 and S5 -- "Evaluated Gross Savings"

These scenarios use key parameters updated based on Energy Division's evaluation studies of installation rates and energy savings, but exclude Energy Division's evaluated NTG ratios. These scenarios result in total earnings around $200 million, though the two sub-scenarios using a 12% sharing rate result in earnings of about $250 million.

(3) Scenarios 6 through 9 -- "Evaluated Net Savings"

These scenarios apply *ex post* savings as evaluated by the Energy Division yielding total shareholder incentive earnings of about $29 million for all the utilities for the 2006-2008 cycle. These scenarios replace *ex ante* utility parameter values with evaluated *ex post* results based on the most recent studies conducted under the EM&V protocols. None of these scenarios result in earnings higher than about $85 million. The sub-scenarios that use a 9% rate result in total incentives of about $30 million, while the use of the 12% sharing rate results in earnings of about $80 million. Scenario 7 shows incentive earnings for all three utilities as $29,101,924. Since the Commission has already authorized $143.7 million in interim RRIM payments, and since there is no

> claw back provision, no further RRIM awards would be due. However, Scenario 7 calculates that PG&E accomplished less than 65% of its demand savings goal, which would place PG&E into the penalty zone, resulting in the refund of previous incentive payments of $74 million.[15]

TURN, DRA, and WEM argue that the incentive true-up should be determined utilizing the Energy Division evaluation of net savings. The IOUs and NRDC, however, oppose the Energy Division findings as the basis for measuring energy efficiency savings. They criticize the Energy Division Report and the measurement studies that formed the basis for its findings on evaluated savings.

The IOUs and NRDC argue that the net savings used in the true-up should instead simply carry forward the *ex ante* assumptions previously used in the 2005 Database for Energy Efficiency Resources (DEER) at least for key

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[15] In its July 9, 2010 comments, DRA claims that the Energy Division penalty calculations for PG&E are understated, and offers corrected values. DRA points out that the PG&E penalty amount calculated by the Energy Division only includes repayment of the interim incentives, rather than the per unit penalty established in D.07-09-043 where energy utility savings are less than 65%. Energy Division calculated that PG&E only achieved 60% of its megawatt (MW) Goal. Applying the penalty of $25,000/MW to PG&E's deficit of 32 MW yields a penalty of more than $800,000. Energy Division also calculates that PG&E achieved only 63% of its MMtherm (MMTh) goal. Applying the per-unit penalty would result in a penalty of $450,000. DRA argues that these goal shortfalls should result in additional penalties of $1.25 million.

Moreover, on Table 23, page 96, the Energy Efficiency Draft 2006-2008 Report calculates that SCE also fell short of its MW Goal at 64%. Using the per unit penalty formula established in D.07-09-043, a penalty of $175,000 would result. DRA notes that SDG&E is calculated as achieving only 37% of its MMTh Goal. At this level D.07-09-043 requires a dollar-for-dollar payback of negative net benefits. Thus, DRA argues that all three energy utilities should repay their interim incentive payments and be subject to penalties as well.

parameters. The IOUs also argue that incentives should apply using a 12% shared savings rate, while TURN, DRA, and WEM support the use of a 9% shared savings rate, as calculated by the Energy Division based on the RRIM formula.

DRA and TURN contend that the Energy Division Evaluation Report utilizes the most up-to-date and independently verified parameters of energy efficiency savings achievements. DRA argues that ignoring these results or engaging in after-the-fact lowering of goals defeats the purpose of the incentive mechanism to align the interest of shareholders and ratepayers by rewarding innovative and effective performance in achieving the Commission's goals. If the IOUs are rewarded for results that do not achieve the Commission's energy efficiency goals, DRA argues the incentive mechanism loses its value to promote optimal performance. DRA and TURN thus support use of the Energy Division's adjusted results in the Evaluation Report for calculating incentives for 2006-2008. DRA and TURN point out that the Energy Division, unlike the IOUs, has no financial interest in the outcome of the incentives calculation and is therefore the most unbiased source of information. DRA argues that if other assumptions are used to calculate incentives, the shared savings rate established in D.07-09-043 should be lowered to reflect the decreased risk shareholders face by using lowered goals or less accurate parameter measures.

On the basis of Evaluation Report data, Energy Division made the following calculation of RRIM earnings for the 2006-2008 cycle (identified as: "Scenario 7" in the Scenario Analysis Report:[16]

Table 2: Scenario 7 Results, Energy Division 2006-2008 Scenario Analysis Report

Utility	**Performance Earnings Basis**	**Earnings % Rate**	**RRIM Total Earnings**	**(Penalties)**
PG&E				($74,930,614)
SCE	$299,294,334	9%	$26,936,490	
SDG&E	$28,365,487	9%	$2,552,894	
SoCalGas	$8,423,204	9%	$758,088	

The Energy Division evaluation results show positive earnings for SCE, SDG&E, and SoCalGas. Since the interim incentives previously awarded for each of these IOUs exceed the final totals, however, no additional incentive earnings would be due. For PG&E, the Energy Division findings indicate a penalty of $74.9 million was incurred because evaluated PG&E MW savings fell below the 65% minimum performance standard (MPS) threshold level.

The IOUs claim that reliance on the Energy Division Evaluation Report as the basis for RRIM earnings would diverge from adopted EM&V protocols. The IOUs claim that the Energy Division Report results are not independently

[16] Although Scenario 7 applied a 9% shared savings rate in completing incentive earnings, a 0% rate should have been applied based upon the achieved percentages of savings goals assumed. Scenario 7 calculates that each IOU achieved less than 85% of its savings goals. Pursuant to D.08-12-059, Ordering Paragraph 4, a 0% rate applies under this assumption.

verified based on adopted EM&V protocols and are not consistent with the Commission policy of independent verification.

The IOUs claim that the Energy Division evaluation has many technical deficiencies and cannot be relied upon to assess IOU achievements for the 2006-2008 cycle. Among the claimed shortcomings, the IOUs complain of inappropriate sample sizes, low confidence intervals, self-reported NTG ratios, and generally poor measurement execution.[17]

The IOUs propose that instead of the Energy Division *ex post* evaluations for certain specified measures at least, incentive earnings should be quantified by applying the *ex ante* values, that were assumed at the time that the 2006-2008 program cycle funding was initially established, as reflected in the 2005 DEER. The IOUs claim that the 2005 DEER values are the only ones that have been properly vetted and accepted. The IOUs nonetheless propose the use of updated data, however, for computing avoided costs and greenhouse gas (GHG) adders.

The IOUs and NRDC argue that the Energy Division evaluation studies completed in 2008 and 2009 are not reliable sources of certain key parameters, such as NTG ratios. In the interests of compromise, however, the IOUs accept certain assumptions in the Energy Division Report except as detailed below. The IOUs seek a final installment of RRIM earnings based upon their own proposed calculation scenario, arguing that their calculation produces an appropriate outcome given the current policy and intent of the Commission. The IOUs' calculation scenario uses the Energy Division's Final Evaluation Report as a

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[17] The Energy Division's responses to claimed technical deficiencies are discussed in Section 5.2 below.

foundation, but applies different assumptions for factors that the Joint IOUs consider to be errors in the Energy Division Report. The Joint IOU Scenario thus:

- applies a 12% shared savings rate in accordance with D.09-12-045 (citation included above);
- does not compare energy savings against 2004-2008 cumulative goals;
- includes 100% of the savings from 2006-2008 C&S activities; and
- applies *ex ante* values for NTG ratios, Expected Useful Life (EUL), In-Service Rates (ISR) for upstream-delivered Compact Fluorescent Light bulbs (CFLs), and Interactive Effects as found in the 2005 DEER.[18]

Based on these assumptions, the Joint IOUs seek an additional $112.3 million in RRIM earnings. When added to the $143.7 million previously awarded, the IOU proposal for an additional $112.3 million would result in cumulative RRIM awards for 2006-2008 totaling $256 million, summarized as follows:

[18] The IOU Scenario accepts the Energy Division evaluated results for remaining parameters including (1) Unit Energy Savings (UES), (2) Installation rates (except for upstream CFLs), (3) Incremental Measure Costs (IMC), (4) Load Shapes, (5) Residential/Non-Residential split for upstream CFLs, (6) Realization Rates, (7) Program Costs, (8) Makeup of PEB: TRC/PAC split, and (9) Goals.

Table 3: Joint Utility Scenario Results

			(Dollars in Millions)		
Utility	**PEB**	**Earnings %**	**Total 2006 – 2008 Earnings**	**Interim RRIM Earnings**	**Final True-Up Payment**
PG&E	$1,146.7	12%	$137.6	$75	$62.6
SCE	752.5	12%	90.3	50.4	39.9
SDG&E	128.3	12%	15.4	11.1	4.3
SoCalGas	106.7	12%	12.8	7.3	5.5
Totals			$256.1	$143.7	$112.3

Because the Joint IOU Scenario was not pre-defined within the ERT, the IOUs customized the ERT to run their scenario. The ERT allows users to run some aspects of the IOU scenario, including *ex ante* NTG ratios, *ex ante* effective useful lives, and *ex post* unit energy savings. However, to include *ex ante* in-service rates for upstream delivered CFLs, the IOUs modified the ERT Input Sheets to reflect the *ex ante* values, while retaining the *ex post* installation rate values for all other measures. Similar customization was required to address *ex ante* interactive effects.

PG&E attempted to modify the ERT to include these interactive effects in calculating earnings under the IOU scenario. As an electric utility, therm interactive effects were not included in SCE's *ex ante* estimates, therefore SCE ran its "with interactive effects" scenario and removed all therm benefits from the ERT. Upon running the scenario through the ERT, the IOUs applied an average factor to the net resource benefits to estimate the affect of increasing the GHG adder to $30 a ton.

5. Discussion

5.1. Summary Findings Regarding the True-Up of Incentive Earnings

In finalizing the 2006-2008 true-up, we are guided by the following fundamental principles:

1. The program should promote the Commission's energy efficiency goals;
2. Incentive methodologies should be applied in a fair, transparent, and conceptually consistent manner; and
3. The utilities should receive incentive rewards or face penalties based on their effective administration of the energy efficiency portfolios given the information they had access to at the time the portfolios were being implemented.

Accordingly, we evaluate the parties' disputes in terms of these goals and principles. Our task is to true-up the interim calculations of incentive earnings for the 2006-2008 cycle, and thereby determine whether additional earnings are due, or whether penalties apply. As a basis for evaluating whether the interim RRIM earnings awards warrant further adjustment as a final true-up, we must identify (a) assumed energy savings accomplishments subject to incentive rewards; and (b) an appropriate percentage allocation of the identified cost savings between ratepayers and IOU shareholders.

Since parties could not reach consensus on a reasonable basis to simplify the calculation of energy savings achievements, we use our independent judgment to assess an acceptable outcome

As discussed below, we rely upon the *ex ante* assumptions from the 2005 DEER, as a performance basis for the true-up of energy cost savings achieved. The EM&V process is the vehicle established by the Commission for measuring success (or failure) in achieving energy efficiency accomplishments and cost

savings for various purposes, but for reasons discussed herein, we do not rely on those results to derive final incentive awards.

We are mindful that the Energy Division evaluation process has been extremely contentious, resulting in considerable disagreement over estimates of energy savings achievements, and the resulting incentive payments due. Unlike expenditures for energy resources that are measured through arms-length transactions, energy savings cannot always be as easily quantified. To calculate cost savings associated with energy efficiency measures, it is necessary to develop assumptions as to relevant parameters based on surveys, sampling, and extrapolation of estimates over extremely large volumes of data points.

Even though we decline to use ex post evaluations to compute incentives, we conclude that the overall Energy Division evaluation was produced with professional care.

The Energy Division presented an evaluation of the 2006-2008 programs' cost effectiveness, excluding the costs of funding shareholder incentive payments. The 2006-2008 cost-effectiveness program results for each IOU, as evaluated by the Energy Division, are summarized below, expressed as in terms of benefit-to-cost (B/C) ratios.[19] The summary below demonstrates how the B/C ratio is impacted by the payment of the $143.7 million interim incentives previously awarded and how the B/C ratio would be further impacted by additional incentive payments of $112.3 million, as the IOUs propose.

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[19] See the Final Energy Division Evaluation Report, Table 32 at 126. The Energy Division benefit-to-cost ratios measured benefits in terms of the net present value of avoided costs of supply-side resources avoided, and measured costs as the net present

Footnote continued on next page

Table 4: Utility Portfolio Benefit-to-Cost Ratios

	Benefit-to-Cost Ratios		
Utility	**(Excluding Interim RRIM Payments)**	**(Net of Interim RRIM Payments)**	**Net of Interim and IOU-Proposed Payments**
PG&E	1.17	1.09	1.03
SCE	1.19	1.12	1.09
SDG&E	1.02	0.98	0.96
SoCalGas	0.90	0.86	0.84
Statewide Average	1.14	1.07	1.03

As summarized above, the Energy Division calculated an overall statewide B/C ratio of 1.14, representing an additional 14 cents of benefits for every dollar of ratepayer investment. Yet, based on the Energy Division's evaluations, the payment of additional incentives in addition to previous interim payments would reduce the overall statewide B/C ratio to only 1.03, and for some individual IOUs, the B/C ratio would drop below 1.0. Consequently, the payment of additional incentive earnings would not provide any ratepayer value, but would instead reduce the B/C ratio, as tabulated above. For SDG&E and SoCalGas, the B/C ratio drops below 1.0.

5.2. Role of the Energy Division Evaluation in the True-Up

The Energy Division Final Evaluation Report of 2006-2008 energy efficiency savings performance was finalized in accordance with adopted

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value of the costs of the programs to participants plus non-rebate costs incurred by program administrators.

Commission processes. The Report found that California ratepayers' $2.1 billion investment in energy efficiency resulted in over 6,000 Gigawatt hours (GWh), 80 million therms, and over 1100 MW in annual energy savings over the 2006-2008 cycle.[20] These accumulated savings represent approximately 3.2% of electricity and 1% of the natural gas sold in 2008. The reported savings were evaluated through field work to verify energy efficient technologies installed and the related savings attributable to the programs. In total, the evaluations for any given parameter directly assessed the majority of the *ex ante* claimed savings. Evaluations of measure installations accounted for 77% of kilowatt-hour (kWh) savings. Evaluations of unit energy savings accounted for 86% of kWh savings. Evaluations of load shapes covered 80% of kW savings and evaluations of NTG ratios covered 90% of kWh savings.

Energy Division focused limited evaluation resources on measuring gross savings from the end-use measures or technologies that dominated portfolio savings, i.e., high-impact measures (HIM), and on estimating net savings attributable to programs with the highest savings from installed technologies. The IOUs claim that HIM methodology developed point estimates for certain measures and then applied them to similar measures across the portfolio. They further claim that the shift in methodology to evaluation of HIMs represents an untested divergence from longstanding and commonly accepted EM&V protocols without the opportunity for public review. In addition, the IOUs claim

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[20] The Energy Division Final Report used an updated E3 calculator that corrected the error for natural gas therm savings as identified by SDG&E in its Petition to Modify D.09-12-045 filed on February 19, 2010. Because we incorporate this correction into our true-up, the referenced Petition to Modify D.09-12-045 is rendered moot.

that the evaluated results were not properly translated into earnings projections, as the ERT itself was systematically flawed such that it produced earnings estimates with no statistical confidence.

We conclude that the Energy Division's HIM focus allowed for a more efficient use of Energy Division resources, allowing for approximately 85% of the reported kWh, kW and therms to be included in the direct evaluation of gross savings. The claim that values from the HIM evaluations were applied without respect to program design, customer, or delivery strategies is inaccurate as illustrated in Energy Division's report.[21] The HIM approach went beyond a program-by-program evaluation by ensuring that the majority of the portfolio savings were subject to evaluation review. The error bound for the net savings estimates for GWh, MW, and MMTherms were added to Energy Division's final evaluation report, Section 4.3. Across the IOUs, the error bounds are ±6% for electricity, ±4% for peak, and ±11% for natural gas at the 90% confidence interval. Results are specific to each IOU and category.[22]

The IOUs claim that the findings in the Energy Division Report are unreliable, lack transparency, and have not been subject to an adequate public review process. PG&E, for example, claims that given the breadth of the evaluation, the time provided for review and comment on EM&V evaluations was too short. PG&E claims that critical data needed to conduct a

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[21] Section 3.4 of the Energy Division Report states that less than 1% of any parameter estimate received an update that was not directly evaluated and in cases where they were, the program design, customer, and delivery strategies were considered by professional evaluators.

[22] See Energy Division Report, Table 19 at 88.

comprehensive review was not made available in a timely fashion, which foreclosed the possibility of robust analysis. Consequently, PG&E believes the process did not provide for the free exchange among stakeholders as contemplated by the Commission in D.07-09-043.

The Energy Division Report necessarily encompasses review of a large number of records that reflect considerable technical complexity and detail. The Commission established a process by which evaluation studies must be posted for public comment prior to finalizing the results. Energy Division followed protocols for vetting adopted in D.07-09-043, characterized as:

> …a specific and adequate process by which parties can submit questions, concerns and comments to both Energy Division and evaluation contractors. Conferences and the submission of written comments based on conferences, allow parties to participate in the process by raising and discussing issues. This takes place in formulating the several reports before they are finalized: the draft Verification Report, the draft final evaluation reports, and the draft Final Performance Basis Report. Our belief is that any concerns the parties may have can be resolved through such a process. (See D.07-09-043 at 129.)

We find that Commission-adopted protocols for stakeholder input and vetting have been followed.[23] Energy Division circulated requests for technical participation from parties, provided draft materials, held several meetings to discuss technical issues, provided opportunities for comments, and responded in writing, explaining how assumptions were applied in developing and measuring

[23] See e.g., ALJ Ruling on process protocols dated January 11, 2006, in R.01-08-028 and January 2, 2007, in R.06-04-010.

performance results.[24] Energy Division changed or updated numbers where comments were found to have merit.

The Energy Division contractors provided updates to installation rates (how many technologies were installed and operating), unit energy savings (savings for any given technology), and NTG ratios (a factor used to adjust savings to account for the influence of the program) where evaluation updates were available. Several parameters, primarily cost data, were part of the data set but were not updated with evaluation results.[25]

The Energy Division adhered to strict timelines and a rigorous public review process. Stakeholders were provided opportunities to comment on the evaluation plans. Consultant reports were published at different times in 2007 and 2008, and the Energy Division's final report was released for public comment in December 2009. Results from the impact evaluations were posted for public review and comment in December 2009 in detailed technical reports, and were also presented in public webinars. The Energy Division Report included voluminous and detailed point-by-point responses to stakeholders' questions and claimed errors. The public comment period generated approximately 1,700 comments, all of which were addressed by the Energy Division and its evaluation contractors. The reports were finalized in February 2010. Summaries of these report findings are included in the Energy Division

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[24] See e.g., Evaluation Report, Appendix O for a compilation of comments and responses.

[25] The updates applied, the source of the update, and the justification of the values were provided by each group, and presented in Appendix C of the Energy Division Report.

report, and the final reports were posted on the California Measurement and Advisory Council (CALMAC) website.

The IOUs claim the Energy Division results are non-transparent and utilize values without references to sources, and that methodologies lack actual documentation. The IOUs claim various technical errors in the processes utilized by the Energy Division in evaluations of savings.

The claimed errors involve various technical details often involving minute and arcane details as to how the Energy Division consultants conducted surveys, extrapolated samples, and used data in calculating the various savings measures. We recognize that there is room for debate about judgments made in conducting surveys and extrapolating results to estimate *ex post* measures. We find, however, Energy Division's work product reflects professional standards of care

The Energy Division managed a budget of $97 million, representing one of the largest energy efficiency impact evaluations in the world, which was implemented by leading evaluation professionals. The focus of its studies was to verify IOU self-reported energy savings and identify energy savings that would not have likely occurred in the absence of the program. The Energy Division report adopts the findings of numerous individual EM&V studies of the performance of various individual energy efficiency programs in the IOUs' portfolios for the 2006-2008 cycle. The studies form the foundation for updates to the utility *ex ante* savings assumptions used to estimate portfolio and program savings and cost effectiveness, and provide information for program improvements and future estimates.

The Energy Division Report synthesizes three years of program implementation and evaluation and presents the final outcomes of multiple

billions of dollars in ratepayer investments. The Energy Division Report incorporates multiple attachments of data and tools that allowed for detailed review by stakeholders. Most pieces (i.e., Contractor Reports, Decision Framework and ERT) have been introduced to the public in advance of the Energy Division report release. The largest and most complex portion of the data (over 4 million tracking records) was provided by the IOUs and standardized in collaboration with Energy Division consultants over the course of a three-year period.

5.3. Use of *Ex Ante* versus *Ex Post* Measures for Measuring Savings

The 2006-2008 energy efficiency cost savings used to determine final incentive earnings varies significantly depending on how key parameters are quantified. Parties disagree, in particular, on the appropriate values for the NTG ratio, expected useful lives, and in-service installation rates. The IOUs and NRDC advocate using *ex ante* values from the 2005 DEER. The Energy Division Evaluation Report calculated updated *ex post* values for these measures. A key factor contributing to the differences between *ex ante* and *ex post* savings is the much lower than expected impact of interior screw lighting measures, as they made up a significant portions of the portfolio, adjustments to NTG ratios, installation rates, and unit energy savings based on the Energy Division evaluation all contributed to these impacts.

As noted by Energy Division, the goals for the last two program cycles (i.e., 2004-2005 and 2006-2008), were developed from analyses conducted in 2002-2004. As a result, significant variances exist between the savings estimates from the Energy Division *ex post* evaluation and the assumptions underlying the original *ex ante* assumptions used to develop the Commission's efficiency goals.

In the aggregate, utility self-reported energy savings during 2006-2008 were claimed at the level of 151% of the adopted goals. By contrast, the Energy Division evaluation found that energy savings equal to only 62% of the adopted goals. Similarly, utility self-reported demand savings for 2006-2008 were claimed to be 122% of the goals, but the Energy Division evaluation found demand savings amounting to only 55% of goals.

In D.05-04-051, the Commission adopted principles requiring *ex post* updates "as a general policy" in the true-up of energy efficiency savings for programs implemented in 2006 and beyond, requiring:

> A true-up of *ex ante* (pre-installation) assumptions for program participation (e.g., types and number of measures or equipment) with actual participation verified on an *ex post* basis, i.e., during and after program implementation.
>
> A true-up of *ex ante* program costs assumptions with actual expenditure levels.
>
> As a general policy, *ex post* evaluation of per unit kWh, kW, and therm savings through load impact studies. An exception to the general policy may be appropriate for measures and/or programs for which there are well-established *ex ante* values with a high degree of confidence, and low external sources of variability that could influence the energy savings.
>
> Persistence studies will not be tied to the performance basis, but shall still be performed to inform future planning. This policy shall be revisited and revised, as appropriate, if there is evidence at a future date that the results of persistence studies are significantly different from the *ex ante* estimates.

In accordance with these requirements, Energy Division developed updated, end user adoption rates, and per unit savings levels through evaluations and other research conducted since the original goals were developed. One of the key principles underlying the original design of the RRIM

as adopted in D.07-09-043 was that key parameters were to be trued up based on updating of net energy savings based on actual *ex post* load impact studies, and subject to independent verification. In D.07-09-043, we expressly stated:

> …[P]otential earnings for the 2006-2008 program cycle start at $176 million if all four utilities achieve the minimum performance threshold of 85%, which in turn would deliver approximately $1.9 billion in net benefits. That is, if the utilities *actually produce net benefits of $1.9 billion* (based on verified costs and resource savings) when they reach 85% of the savings goals, then their shareholders will receive $175 million of those net benefits under the shared-savings structure we adopt today. (D.07-09-043 at 10, emphasis added.)

The Commission postulated in D.07-09-043 that failure to update would create a perverse incentive, stating that:

> an approach that fails to true-up savings and net benefits (PEB) accomplishments based on the results of final load impact studies creates a perverse incentive for utility managers to promote exaggerated savings assumptions during the planning process. This is because the utility knows that it can get progress payments based on these inflated estimates that are not returnable when the final true-up reveals lower load impacts. (D.07-09-043 at 121.)

The *ex post* savings were to be independently evaluated by the Commission's Energy Division.[26] In D.05-01-055, we mandated that the Energy Division take responsibility for managing and contracting for all EM&V studies. This mandate marked a shift in the responsibility from the utilities to Commission staff and helped ensure unbiased results by having a neutral party overseeing the EM&V process. This process ensures that incentives are awarded

[26] D.07-09-043 at 4.

based on independently evaluated, real savings, and that customers fund incentives only for real and verifiable savings. Energy Division has access to the experience and expertise of evaluation contractors throughout the processes for developing the research and data to estimate interim and final earnings claims.

The Commission has previously recognized the importance of independent verification and evaluation in ensuring that ratepayers get value commensurate with their energy efficiency investment, that programs are well designed, and that energy efficiency is considered a reliable resource comparable to supply side resources.[27] We previously rejected requests by the IOUs to remove the requirement for updates of key parameters in assessing RRIM earnings. In denying the IOUs' earlier request to retreat from the updating of parameters, we explained in D.08-12-059:

> At this point we do not think it would be reasonable to remove, in part or in whole, the requirement that the *ex ante* assumptions used to assess interim claims be updated. This updating is part and parcel of the balance that was struck in D.08-01-042 between providing utilities the ability to book interim rewards without the uncertainty that they would have to return these interim amounts after the fact, and limiting the risk to ratepayers of overpayment. (D.08-12-059 at 19.)

We reiterated the importance of this principle in D.09-12-045 where we relied upon updated assumptions in the Energy Division verification studies as the basis for the cost savings used to allocate incentive awards. By not updating *ex ante* assumptions, we are left with an outdated basis for measuring cost savings and associated incentive payments. We have previously stated that the

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[27] D.05-01-055 at 112.

earnings true-up would reflect updated assumptions in the DEER, as noted in D.08-01-042:

> 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. (D.08-01-042 at 17.)

For purposes of determining the actual impacts of energy efficiency programs in reducing demand and obviating the need for supply side resources, it is clearly incumbent on the Commission to update the assumptions used to quantify the impacts of the utilities' efforts. Because the actual impacts of energy efficiency play a key role in determinations of supply side resource need, it would be inappropriate to assess savings achieved from energy efficiency based on outdated assumptions in this context. If, for example, a given variable, like a measure expected useful life, is found to be less than what was assumed when the utility portfolios were adopted, it would make no sense to ignore that update and rely on an exaggerated estimate of energy savings since this will have real world impacts in terms of Commission determinations of supply-side resource need once energy efficiency has been accounted for. Similarly, in the case of variables like NTG ratios, which do not in of themselves impact the gross savings of a given measure or program, it is incumbent on the Commission to evaluate these as it does drive determinations of measure and program cost effectiveness. However, in the context of the incentive mechanism, as explained below, it appears that the reliance of ex post updating creates an unacceptable amount of risk for the utilities by imposing unrealistic expectations regarding their ability to

anticipate and respond to changes in thousands of parameters that influence program performance.

As noted above, in D.07-09-043 the Commission endorsed the idea that failure to update the ex ante assumptions would create a perverse incentive for utility program managers to exaggerate savings assumptions during the portfolio planning process. While such an incentive may exist absent updating, on further reflection this determination fails to account for the fact that the utility portfolios are submitted for review and approval by the Commission with extensive opportunity for feedback from stakeholders, and as such, any claims by the utilities regarding the cost effectiveness or savings potential of the their portfolios are expressly subject to Commission review. In conducting that review, the Commission must make a determination regarding the cost-effectiveness of the utility portfolios and their ability to meet the goals we have adopted. The Commission may, and clearly should, rely on information beyond that put forward by the utilities in making that determination. Nothing in this process prevents the Commission or other parties from contesting the assumptions made by the utilities based on other, more objective sources of information.

There is profound disagreement on the appropriateness of the various adjustments to many of the underlying assumptions and parameters driving the estimated performance of the utility programs. However, in our view, more important than the technical disputes regarding the "right number" for each of these assumptions is a more fundamental question regarding the fairness in how the mechanism actually operates. In particular, the intense debate over factors like the net to gross ratios, measure expected useful life, and the residential/non-residential split, begs the question of whether the incentive mechanism

appropriately rewards or penalizes the utilities for things that could be reasonably anticipated or are within their control, or if, instead, the mechanism is rewarding or punishing the utilities for a variety of factors over which they have only limited control or ability to anticipate and respond to. The efficacy and legitimacy of the incentive mechanism as implemented hinges fundamentally on the ability of the utilities to modify their programs and portfolios over the course of the 2006-2008 program cycle in response to changes in the various parameters that influence measure savings and attribution.

However, as a practical matter, the ability of the utilities to reasonably anticipate, much less respond to, these changes is limited. Assessing the changing dynamics of the energy efficiency environment and market is a profoundly difficult task. This fact is reflected in the tens of millions of dollars in ratepayer monies that are allocated to EM&V activities[28] each year to develop the very same estimates that the mechanism as implemented to date all but requires the utilities to anticipate. The argument has been made that the utilities had ample information available to them regarding changes in some of the key underlying assumptions given the ongoing EM&V activities of Energy Division, and that based on this information, the utilities can and should have modified their portfolios accordingly. For example, prior to the incorporation of formal updates to DEER in October of 2008, draft EM&V studies of the 2004-2005 energy efficiency programs were made available which indicated, among other things, that NTG values for lighting were declining. These results could be reasonably

[28] D.05-11-011 authorized $162,794,829 for EM&V activities over the 2006-2008 energy efficiency program cycle.

deemed final, and actionable, in October of 2007, when the 2004/2005 Statewide Residential Retrofit Single-Family Energy Efficiency Rebate Evaluation (Itron Report) was published. However, prior to that date, these updated assumptions were preliminary and subject to additional review by parties and the Energy Division.

The IOUs argue that the NTG updates in the Energy Division Verification Report occurred too late in the 2006-2008 cycle to enable the IOUs to make meaningful mid-course adjustments in program funding in response to the updated NTG ratio. By way of example, for PG&E's programs, allocations of incentives to upstream lighting manufacturers/distributors must be made at least 120 days prior to the movement of the products into the marketplace. Therefore, the IOUs argue that the October 2007 report allowed little time for adjustments to program delivery and implementation to take hold during the 2006-2008. They argue therefore, it is inappropriate to apply these NTG values to the entire 2006-2008 program cycle for purposes of awarding incentives. We agree. Until the review process has run its course and numbers are adopted as final, we do not think it is reasonable to, in effect, require the utilities to modify their portfolios as if preliminary assessments are, in fact, final. To do so undermines the purpose of the review and essentially prejudges the outcome of that process. A more reasonable approach and expectation is for the utilities to modify their portfolios based on robust and fully vetted assumptions available to them at the time they are developing and implementing their portfolios. We do not believe the changes to the parameters that result in the dramatic swing in earnings under the incentive mechanism as adopted were available in a manner that would have allowed the utilities to react.

It should be noted that the controversy over key parameters, most notably NTG ratios, was discussed in D.05-09-043, which authorized 2006-2008 programs. D.05-09-043 cautioned that "[s]pecific sensitivities around the NTG ratio assumptions indicate that the proposed portfolios may not meet the cumulative 2006-2008 energy (GWh) savings targets."[29] The Commission found some risk that the portfolio plans may not meet the Commission-adopted GWh and therm energy savings goals, due to uncertainties over free ridership assumptions and the useful life estimates associated with certain lighting measures, among others.

The Commission directed that NTG ratios used for planning purposes would be "further addressed through *ex post* true-up of these ratios in performance basis evaluation, consistent with our direction in D.05-04-051."[30] In recognition of the uncertainty as to whether the assumptions underlying the achievement of savings goals were realistic, the Commission did not direct that those assumptions remain frozen throughout the 2006-2008 program cycle for incentive purposes. Instead, we stated:

> Our decision today on how best to bound the uncertainty associated with this key savings parameter for planning purposes is predicated on the expectation that NTGs *will* in fact be adjusted (trued-up) on an *ex post* basis when we evaluate actual portfolio performance. We believe that this is entirely consistent with the resolution of threshold EM&V issues in D.05-04-051. (D.05-09-043 at 97.)

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[29] D.05-09-043 at 56. See, generally, the discussion concerning the Case Management Statement at 53-56.

[30] *Id.* at 167, Findings of Fact No. 7.

While the fact the Commission took this position is clearly indicative of concerns regarding the uncertainty around the NTG ratios, and the possibility that the NTG ratios used in developing the portfolios were too high, in our view because these concerns are expressed only in qualitative terms and based on preliminary results, this information provided an insufficient basis for the utilities to act. Given the preliminary nature of the information available to the utilities over the 2006-2008 period regarding changes to key paramaters, the expectation that they should have dramatically modified their portfolios is unreasonable.

As further testament to the difficulty in anticipating the magnitude of the changes Energy Division has observed in the various parameters that affect the energy savings estimated to result from the utilities' energy efficiency programs, it bears noting that when the RRIM was adopted in D.07-09-043 it allowed for interim claims subject to a holdback of 30%. As stated in Ordering Paragraph 4 (c): "Thirty (30) percent of the earnings calculated for each interim claim shall be "held back" until the final true-up claim, in order to *minimize the risk of overpaying the utilities in their interim claims*." [italics added]. In order to minimize the risk of overpayment, the Commission thought that the possibility of the incentives changing by more than 30%, based on ex post review, to be relatively remote. However, the results of Energy Division's Verification Reports strongly indicate this was incorrect. For the 2006-2008 portfolios, the estimated incentive earnings the utilities would have earned if their programs were evaluated on the basis of ex ante assumptions would have been $307 million.[31] Changes in the underlying

[31] 2006-2008 Energy Division Scenario Analysis Report at 39.

parameters results in collective earnings declining to minus $45 million, a swing of $353 million in incentives. This represents a reduction of more than 100%.[32] This swing is entirely explained by changes in the underlying parameters. Clearly the magnitude of the shift in the incentive amounts driven by these changes far exceeds the relatively substantial 30% holdback that the Commission adopted as a buffer in D.07-09-043, to minimize the risk of overpayment. The Commission itself failed to reasonably anticipate the magnitude of the dramatic changes to the parameters underlying its assessment of energy efficiency program performance and the huge swings this would cause in the incentive calculations. It is telling that the timing of D.07-09-043 predated by only one month the issuance of the 2004/2005 Statewide Residential Retrofit Single-Family Energy Efficiency Rebate Evaluation, thus suggesting the Commission itself had access to information regarding the potentially significant reduction in the NTG ratios. In the face of this information, the Commission adopted a 30% holdback to "minimize" the risk of overpayment, an amount that proved to be too low given the dramatic changes in the estimated savings and incentives based on the updates to the ex ante assumptions.

The forgoing discussion suggests that one of the fundamental premises on which incentive mechanism is based as it was adopted in D.07-09-043 is fundamentally flawed. Specifically, it is unreasonable to expect the utilities to anticipate the very substantial changes in a number of the key parameters over the three year cycle that drive their energy efficiency program results. Furthermore, given the after-the-fact timing of Energy Division's updates to

[32] *Ibid*. at 30, Table 9.

these parameters we find that the IOUs did not have the opportunity to modify their portfolios on the basis of this updated information in a way that would allow them to avoid the adverse impacts of those updated assumptions on estimated program performance. Irrespective of the accuracy of the updates adopted by Energy Division we find that the incentive mechanism as implemented is unfair to the utilities, in that it bases its results on assumptions the utilities cannot be reasonably expected to anticipate, nor, when those changed assumptions come to light, respond to in a way to avoid adverse impacts on the estimated performance of their programs. Or, to put this another way, we find that the utilities' administration of their portfolios was reasonable given the availability of information at the time the portfolios were being implemented.

A more reasonable approach to assessing the 2006-2008 period for purposes of determining utilities' energy efficiency program performance and the associated incentive earnings is to rely on ex ante assumptions. These were the assumptions the utilities used in developing the portfolios that the Commission approved in D.05-09-043 for the 2006-2008 cycle. Notably they are also the assumptions that align with the goals against which the utilities performance is being measured as noted in D.09-12-045.[33]

5.4. Shared Savings Percentage Rate for the True-Up

While evaluating the utilities programs on an ex ante basis is straightforward, we note that making this one modification substantially

[33] D.09-12-045 at 68 and FOF 19.

changes the risk profile of the mechanism. By removing the updating provisions, the risk to ratepayers of overpayment (defined here as incentive payments that are justified on the basis of the assumptions relied on at the time the portfolios were adopted, but that with updated assumptions would not be earned), increases substantially. Conversely, the risk of penalties is greatly reduced to the utilities as it removes a key source of uncertainty in the mechanism, namely changes to key underlying parameters that occur over the three year program cycle. This change does conflict with a number of the criteria adopted in D.07-09-043. Many of these criteria reflected the desire of the Commission to virtually eliminate all risk to ratepayers that they would pay incentives for the utilities implementation of portfolios and programs that in retrospect turn out to have delivered fewer savings than had been anticipated when those portfolios were adopted, and place all of that risk on the utilities. For reasons explained above, we find this approach unfair given more reasonable expectations regarding the ability of the utilities to anticipate and respond to changing assumptions. While this change does substantially reduce the risk to the utilities of incurring penalties, we note that it doesn't wholly eliminate it. Even holding ex ante assumptions constant, the utilities still need to ensure that programs are effective in promoting widespread deployment of energy efficiency measures. Regardless, this change does alter the risk profile of the mechanism, shifting additional risk to ratepayers.

There are a number of levers available to the Commission that it could use to rebalance the mechanism in light of this shift to an ex ante approach, represented by the various factors or elements of the incentive mechanism including the minimum performance standard and the placement of the various inflection points on the earnings/penalty curve, the caps applied to the penalties

and rewards, and the shared savings rate. In our view, the most straightforward option is to reduce the shared savings rate to reflect the substantially reduced risk the utilities face under an ex ante approach. By reducing the shared savings rate the potential earnings under the mechanism will be reduced. This approach is consistent with the views expressed by DRA and TURN in the context of proposed reforms to the RRIM. Both DRA and TURN have argued that should the Commission modify the RRIM in a way that reduces the risk to the utilities and increases the risk born by ratepayers, that corresponding changes should be made to the shared savings rate and incentive cap.[34] We agree with the thrust of these arguments and find they are equally applicable in the context of modifications to the incentive mechanism as it applies to the 2006-2008 period.

We now turn to the issue of the magnitude of the reduction in the shared savings rate that is appropriate under the ex ante regime. The level of shared savings was established in D.07-09-043. As noted in that decision, "establishing the level of earnings opportunity for a shareholder risk/reward mechanism is ultimately a judgment call the Commission must make, and not a precise science."[35] The range of proposed shared savings rate was fairly broad, as indicated in Attachment 3 to that decision. DRA, TURN, and the Community Environmental Council proposed shared savings rates generally below 5% of the Performance Earning Basis. In contrast, the utilities argued for much higher shared savings rates, ranging from 10% and increasing to as much as 30%,

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[34] DRA Post Workshop Comments and Further Recommendations for the 2009-2011 Shareholder Incentive Mechanism at 13; TURN Post Workshop Reply Comments on Energy Efficiency Incentive Mechanisms at 4.

[35] D.07-09-043 at 104.

depending on the performance of the utility programs relative to the energy efficiency savings goals. NRDC supported a middle-ground level, ranging from 6% to 12%. The decision ultimately adopted a shared savings rate of 9% of the PEB in cases where the utilities' programs achieved between 85% and 100% of the energy efficiency goals, and a 12% shared savings rate if the utilities' programs exceeded 100% of the energy savings goals.[36] Given the reduction in the risk to the utilities under the ex ante approach we adopt here, and leaving all other aspects of the mechanism unchanged, we believe it is necessary to reduce the shared savings rate accordingly. In our judgment a shared savings rate of 7% provides the appropriate level of risk re-balancing. This shared savings rate will be applied to the PEB in lieu of the 9% and 12% shared savings rates that were adopted in the mechanism.

For purposes of calculating incentives under the approach adopted herein, we rely on Scenario 3 (S3), Template 1 (T1) included among the various scenarios that were developed and presented in the Energy Divisions 2006-2008 Scenario Analysis Report, as this scenario reflects the use of ex ante assumptions (i.e. those in DEER at the time the utilities energy efficiency portfolios were adopted) adjusted to reflect verified installations. Under this scenario-template combination, both the utilities' program performance against the minimum performance standard and the performing earnings basis are calculated using ex ante assumptions. Applying a 7% shared savings yields the results provided in Table 5 below. We note that this scenario-template combination includes the 2004-2005 cumulative savings goals in determining the relevant minimum

[36] D.07-09-043 at 8.

performance standard as well as attribution of 50% of the savings attributed to codes and standards development to the utilities for purposes of determining program performance relative to the minimum performance standard. With regard to interactive effects, S3-T1 does not reflect any specific updates or to account for interactive effects, either positive or negative.

Table 5: Scenario 3, Template 1 RRIM Results Modified to Include a 7% Shared Savings Rate

	Third Earnings Claim (PY2006-2008 True-Up)				
	PG&E	SCE	SDGE	SoCalGas	Total
MPS Average Metric Performance	121%	98%	93%	112%	110%
PEB at MPS Threshold	$ 1,486,366,077	$ 985,273,728	$ 230,997,869	$ 245,622,959	$ 2,948,260,634
Earnings Rate	7%	7%	7%	7%	
Total Earnings Over 2006-2008 Period	$ 104,045,625	$ 68,969,161	$ 16,169,851	$ 17,193,607	$ 206,378,244
1st Interim Claim Earnings	$ 41,500,000	$ 24,700,000	$ 10,800,000	$ 5,200,000	$ 82,200,000
2nd Interim Claim Earnings	$ 33,430,614	$ 25,652,348	$ 300,572	$ 2,111,021	$ 61,494,555
Total Interim Claim Earnings Received	$ 74,930,614	$ 50,352,348	$ 11,100,572	$ 7,311,021	$ 143,694,555
True-Up Claim	$ 29,115,011	$ 18,616,813	$ 5,069,279	$ 9,882,586	$ 62,683,689

6. San Diego Gas & Electric and Southern California Gas Company Petition for Modification

On February 19, 2010 San Diego Gas & Electric and Southern California Gas Company (Joint Petitioners) filed a Petition to Modify D.09-12-045 to address a number of calculation errors the Joint Petitioner allege resulted in an unjustifiable reduction of the energy savings attributed to their energy efficiency programs. As result of this calculation error, the incentive earnings approved by the Commission in D.09-12-045 were less than what the Joint Petitioners would have been entitled to had this calculation error not occurred. Specifically, Joint Petitioners argue that the energy savings attributed to their respective energy efficiency programs in the Second Interim 2006-2008 Verification Report reflected results that were miscalculated owing to an error in the E3 calculator. According

to the Joint Petitioners, the E3 calculator incorrectly truncated estimated savings from certain gas measures installed under the Joint Petitioners' energy efficiency programs such that only savings through the year 2024 were included in the savings results, despite the fact that these measures may continue to provide benefits beyond 2024. Joint Petitioners present evidence indicating E3's acknowledgement of this error. The Joint Petitioners also provide an estimate of the additional incentives they should have received had this error been corrected. DRA filed a response to the Petition on March 22, 2010. DRA did not take a specific position on the Petition itself, only indicating that it was unable to confirm that the calculation error occurred nor its magnitude. DRA asked that before granting the requested relief that Energy Division verify the error and its impact.

Under the approach adopted herein, we find that the Petition for Modification is rendered moot. First, we note that error observed by Joint Petitioners was corrected in the calculation of the results provided in the Energy Divisions 2006-2008 Scenario Analysis Report. In addition, under Scenario 3, which serves as the basis for the calculation of incentives herein, the total amount the Joint Petitioners earn in incentives over the 2006-2008 cycle exceeds the amounts they have already received in interim payments. According to Scenario 3, modified to apply a 7% shared savings rate to the PEB , SDG&E and SoCal Gas should receive a total of $16.2 million and $17.2 million, respectively, for their programs' achievements over the 2006-2008 period. They have each received interim payments of $11.1 million and $7.3 million, leaving an additional $5.1 and $9.9 million to be paid in this final true-up claim. To the extent the prior claims understated the amounts the Joint Petitioners were owed, so long as the additional amount found to be owed for purposes of the final true-up claim

exceeds the additional amount Joint Petitioners believe they should have been paid in the prior claims, any underpayment from the interim claims will be fully reflected in a commensurately higher final true-up payment. The additional amounts the Joint Petitions claim they should have received in D.09-12-045 are $426,142 for SDG&E and $1,324,612 for SCG. These amounts are far less than the additional payments we find the Joint Petitioners are owed for this true-up claim. Therefore, the Petition is rendered moot.

6.1. Energy Efficiency Parameter Updates

Because we decide to conduct the true-up of the 2006-2008 incentive claims on the basis ex ante assumptions, for the narrow purpose of resolving the 2006-2008 incentive claims we do not need to resolve all of the concerns raised over the course of this proceeding regarding the accuracy of Energy Division's updates to various key parameters. In our view, whether the updates to key parameters are reasonable in light of more current information is a separate question from the use of those updates for purposes of determining incentive amounts under the RRIM. However, given the critical role these updates play in planning and evaluating the utilities portfolios going forward, we feel it is appropriate to consider these issues nonetheless. In addition to concerns regarding the accuracy/reasonableness of the updates to various measure parameters, questions were also raised regarding the calculation of the energy efficiency goals themselves, in particular regarding inclusion of 2004-2005 cumulative goals is assessing the utilities' program achievements relative to the MPS, inclusion of Codes and Standards, and adjustments to account for interactive effects. We address each of these below. With the exception of the latter three issues, we seek to confine our discussion to whether the updates to

these parameters are reasonable, notwithstanding our determination that for purposes of the 2006-2008 true-up, we will use ex ante assumptions.

6.1.1. Updates to NTG Ratios

In the context of energy efficiency programs, the NTG ratio measures the effects of "free riders," i.e., participants who would have undertaken an energy efficiency activity even absent a utility program.[37] While the NTG ratio does not change the measurement of gross savings from all energy efficiency investments, the savings attribution does impact the cost-effectiveness calculations, and the basis for allocating the gross savings between the utility programs and other impacts. In this section, we explain in more detail the basis for our reliance on the Energy Division *ex post* update of NTG ratios for purposes of measuring net savings.

In D.07-09-043, we designed the RRIM to limit incentive awards only to savings that directly result from utility programs, and excluding savings attributable to "free riders." Applying the NTG adjustment to program savings, in turn, motivates the utilities to direct energy efficiency dollars to achieve results that would not otherwise have occurred as a factor in determining what energy efficiency programs to pursue. Likewise, ratepayers only pay incentives for savings that were achieved as a direct result of funded programs.

[37] For example, an NTG ratio of 0.80 indicates that 80% of total participants are not free riders.

There are two separate disputes regarding the use of the NTG ratio: (1) whether the NTG ratio should be updated at all during the 2006-2008 cycle, and (2) if so, what updated figures should apply.

PG&E claims that in the final performance evaluation, many of the NTG ratios were estimated based upon inadequate sample size, insufficient survey response levels, and excessive delays in surveying customers regarding their motivation for participation in energy efficiency programs.

We recognize that judgments may differ in estimating the effects of free ridership, and acknowledge that any measure of the NTG can at best only be an approximation. Measurement of NTG ratios has caused particular controversy both because evaluation methods depend on customer behavior survey results and because positive impacts in market transformation – for example, greater consumer awareness of the benefits of CFLs – will reduce the energy savings yielded by a given measure that will be attributed to the utilities[38] We have previously recognized that measuring NTG ratios is inherently difficult. For example, we acknowledged in D.08-12-059 the utilities'

> …concerns expressed regarding the robustness of assumptions and updates thereof used to assess utility performance under the incentive mechanism. For example, the net-to-gross ratio has engendered substantial controversy throughout this proceeding. This can be largely attributed to the inherent difficulty in developing a robust number that quantifies the level of energy efficiency

[38] The NTG for CLFs is one of the key parameters that has changed, as consumer demand for CFLs has increased due to the combined impacts of utility rebate programs, supply growth and price declines from large retailers such as WalMart, and greater public awareness of the impact of climate change and its relation to electricity production.

> measure deployment that would have occurred in the absence of utility programs. Unlike many of the other parameters used in assessing program performance, which lend themselves to sampling methodologies and direct measurement, estimates of the net-to-gross ratio rely on surveys in which upstream and downstream program participants are asked to assess the impact of utility programs on their behavior or that of their customers. (D.08-12-059 at 20-21.)

Studies that evaluate NTG ratios ask customers deploying energy efficiency measures to recall whether their decision to adopt such measures, sometimes more than a year before, was directly attributable to utility programs. The fact that NTG ratios are difficult to measure, however, does not justify ignoring NTG effects in determining the amount of energy savings that should be credited to the activities of the utilities . The importance of NTG measurement in relation to performance and cost effectiveness should not be minimized merely because NTG measurement is not an exact science and is difficult to measure. If certain measures and their associated savings would be deployed regardless of the utility programs, it would be a waste of ratepayer money to continue to support those programs.

The IOUs also criticize the reliance on self-reporting as a survey tool to estimate NTG ratios. As explained by Energy Division, however, the self reporting approach implemented in the evaluations to estimate NTG ratios is a widely-used and well-established means of measuring attribution and has in fact been implemented on numerous occasions by the IOUs. Energy Division's "Net to Gross Working Group" was convened early in the evaluation process to ensure consistency in survey methods and design and scoring algorithms. Additionally, Energy Division technical advisors drafted NTG supporting

documents that provide detailed explanation of the use of the self reporting approach in these evaluations and address questions of potential bias.

6.1.2. Effective Useful Life Estimates

The effective useful life (EUL) is an "estimate of the median number of years that the measures installed under the program are still in place and operable."[39] The IOUs' proposed scenario would exclude the EUL from the 2008 DEER update of energy savings measures, but instead use 2005 *ex ante* EUL values for calculating RRIM earnings for 2006-2008 performance. The IOUs propose not to update the EUL either for the final true-up.

The IOUs claim that the Energy Division report produces faulty results by calculating savings based upon updated estimates for EULs. The IOUs further claim that the updated EUL estimates were technically flawed and did not rely upon EM&V studies or best practices, but instead were based on new, un-vetted, and nontransparent engineering simulation models. The IOUs claim that the EUL estimate for residential CFLs was modified based on insufficient sample sizes. The IOUs claim that Energy Division did not specifically study EULs in their 2006-08 evaluation, and thus cannot corroborate the DEER 2008 updates.

Prior to the DEER update, the EUL for residential indoor CFLs failed to reflect usage patterns associated with those CFLs and led to shorter lamp life than the rated life.[40] After considering available studies and other evidence, the

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[39] The California Evaluation Framework, TecMarket Works, June 2004 at 418.

[40] See October 10, 2008 Energy Division EUL Comments and Response to posted at http://www.energydataweb.com/cpuc/ at 2.

Energy Division adjusted the EUL for indoor residential CFLs to reflect usage patterns associated with indoor residential CFLs.

6.1.3. Upstream CFL In-Service Rates (ISR)

With regard to the ex post updates to the upstream CFL in-service rates, PG&E claims that more research is needed as a basis to ascertain a more reliable split between residential and nonresidential CFLs.

As previously discussed in D.09-12-045, we can not validate the claim of 90%/10% installation split assumption for upstream CFLs sold, for the following reasons:[41]

a. There are likely to be significant differences between the 1994 programs, lighting products, and purchasing patterns compared to 2006-2008.
b. The extent to which the 1994 consumer mail-in survey data contains possible self-selection bias is not known.
c. Whether or not the 1994 consumer mail-in survey data were drawn from a random and representative sample of customers cannot be ascertained.
d. Customer survey data collected between 2004 and 2007 as part of the upstream lighting program evaluations suggest that the proportion of commercial customer purchases is likely to be between 3% and 7%.
e. Preliminary data from 2006-2007 in-store intercept surveys suggest that the volume of CFLs purchased by nonresidential customers from retail channels is about 2%, but the data do not appear representative and conclusive at this time.

[41] See Second Verification Report at 72-73.

f. Surveys of recipients of CFLs given away at the events organized by IOUs in 2006-2007 show that 1–2% of CFLs given away are installed in nonresidential premises.[42]

g. The number of commercial building sockets which can receive CFLs (data available from the Commercial End Use Survey database) combined with the fraction of likely upstream commercial purchasers (in D above) does not appear to support more than 2-5% of the 2006-2007 upstream CFLs volume (>50,000,000 bulbs) being installed in non-residential buildings.

According to the Energy Division report, the relevant data sources strongly suggest that nonresidential installations of CFLs sold through upstream programs are less than 10%. We rely upon the Evaluation Report's assumed split between residential and commercial CFL usage rather than the 90/10 split which is based on a 1994 mail-in survey of customers. The 90/10 split assumed by utilities has not been justified given: (1) the potentially significant differences between programs, lighting products and purchasing patterns in 1994 as compared to 2006-2007; and (2) more recent customer survey data indicating that the percentage of nonresidential CFL purchases, and information about the number of commercial sockets available for CFL installation.[43] The more recent information reviewed by Energy Division regarding the likely distribution of CFLs between the residential and nonresidential sector is more reliable than a 15-year-old study that supports a 90/10 assumption.

After considering available studies and other evidence, the Energy Division adjusted the EUL for indoor residential CFLs to reflect usage patterns

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[42] See Appendix A5.

[43] CPUC Energy Efficiency 2006-2007 Final Verification Report at 58-59.

associated with indoor residential CFLs. We find the Division Updates to this parameter to be reasonable.

6.1.4. Treatment of 2004-2005 Cumulative Goals

The Energy Division Scenario Analysis Report calculates incentive earnings based on cumulative goals starting from 2004, compared with alternative impacts from excluding cumulative 2004-2005 goals. The direction provided in D.07-09-043, Ordering Paragraph 4(b) called for interim incentive claims to be evaluated on a "cumulative-to-date" basis. As further explained in D.07-10-037:

> For any given year, cumulative savings represents the savings in that year from all previous measure installations (and reflecting any persistence decay that has occurred since the measures were installed) plus the first-year savings of the measures installed in that program year. (D.07-10-037 at 77.)

Our rules on cumulative savings goals were first developed in D.04-09-060 to ensure the IOUs focus on long-term savings, as opposed to those with short-term payback and short expected useful lives. We elaborated on this principle in D.07-10-037, which stated:

> Under the risk/reward mechanism's MPS, the utilities are further motivated to avoid excessive reliance on short-lived measures. Therefore, it does not work to the utilities' advantage to focus exclusively on measures with short lives (or low persistence of savings over time) because doing so creates the savings shortfall illustrated above, making it harder to meet the MPS. For example, if an energy efficient light with an expected life of five years was installed in 2004, it will remain in service producing savings throughout 2006-2008, after which it will reach the end of its life and need to be replaced with like-savings in 2009. (D.07-10-037 at 77.)

The IOUs, however, take issue with the inclusion of 2004-2005 data in measuring cumulative goals in deriving incentive earnings for the 2006-2008 cycle. In D.09-05-037, the Commission found that 2004-2005 data is not directly reconcilable with 2006-2008 evaluation results. Consequently, cumulative savings for purposes of the prospective program cycle were defined to exclude the 2004-2005 data. (D.09-05-037 at 57.)

The Commission likewise concluded in D.09-12-045 that "[f]or the purposes of measuring interim incentive earnings for the 2006-2008 cycle, we agree that it is appropriate to exclude the effects of cumulative goals starting from 2004, as reflected in the Verification Report." (D.09-12-045 at 66.) The IOUs argue that the same principle of excluding the cumulative effects of the 2004-2005 program cycle should apply for determining incentive earnings in the final 2006-2008 true-up.

As explained in D.09-05-037, although we excluded 2004-2005 data in the calculation of cumulative savings for the 2010-2012 cycle, we did not reverse our policy of comparing results against cumulative goals. As stated in D.09-05-037, cumulative savings are a critical element of our overall strategy to create long-term, lasting savings through ratepayer investments. Without the cumulative savings goals, we cannot ensure that energy efficiency programs will produce benefits comparable to investments in power plants.

Although we excluded 2004-2005 data in measuring cumulative goals for the 2010-2012 cycle, we did not decide how 2004-2005 data should be treated in defining the cumulative savings for the final 2006-2008 true-up. The treatment of 2004-2005 data for the 2006-2008 true-up likewise does not set any precedent as to the treatment of cumulative goals on a prospective basis as previously addressed in D.09-05-037.

Under the ex ante approach adopted herein to evaluate the IOUs' performance over the 2006-2008 period and the associated incentive earnings, we note that all the IOUs meet and exceed the minimum performance standard required to begin earning incentives. Scenario 3, on which the incentive claims adopted in this decision are largely based, includes the 2004-2005 cumulative goal data. Excluding these cumulative goals would have no impact on the claim result given that it will only further reduce the MPS hurdle that, under the approach adopted herein, the IOUs already exceed. Furthermore, because we are adopting a 7% shared savings rate in lieu of the tiered 9% and 12% shared savings rates, excluding the 2004-2005 cumulative goals would have no impact on the level incentive earnings. Therefore, for purposes of this decision we find the issue of excluding the 2004-2005 cumulative savings goals moot.

6.1.5. Savings from Codes and Standards (C&S) Advocacy Programs

The IOUs argue that the Commission's policy rules for energy efficiency state that 100% of verified savings from pre-2006 C&S Advocacy Programs shall count towards the energy savings goals, minimum performance standards and performance earnings basis for the 2006-2008 and 2009-2011 program cycles.

The ERT assumptions utilized by the Energy Division, however, did not reflect any net benefits associated with any C&S activity initiated within the 2006-2008 program cycle.

In D.09-12-045, the Commission accepted the non-inclusion of such C&S benefits for interim claims because information was not yet available for incorporation into the savings calculations. The Commission thus concluded that "since the requisite data will be incorporated for purposes of the 2010 true-

up, the utilities will be made whole for the effects of any updated data that may change the incentive earnings amount." (D.09-12-045 at 64-65.)

The IOUs claim that omission of this information in the Energy Division's calculations systematically undercounts the benefits associated with the utility 2006-2008 programs. In accordance with the Commission's directive, the IOUs argue that the savings used to compute RRIM earnings should include 100% of the efficiency savings and net benefits from the aforementioned C&S.

In D.10-04-029, the Commission determined that it is appropriate to count 100% of these savings toward achievement of the 2010-2012 cumulative goals. This determination was based on the finding that: "…better technical data about savings is now available as compared to when the original 50% determination was made in D.05-09-043, including Evaluation Protocols and elimination of concerns about double-counting and base case forecasts." (D.10-04-029 at 46.) Because C&S savings only impact the assessment of utility performance relative to the minimum performance standard but do not factor into the calculation of the Performance Earnings Basis[44] , we find that this issue is moot for purposes of determining the level of incentives the utilities earn over the 2006-2008 period. Under the ex ante approach adopted herein, the utilities exceed the MPS when including only attributing 50% of the C&S savings to their programs. It follows that increasing the amount of C&S savings the utilities get to count toward the MPS would result in the utilities exceeding the MPS by more. However, because C&S savings are not included in the calculation of the PEB, and furthermore, because we adopt a fixed shared savings rate of 7% irrespective of how much the

[44] D.05-09-043 at 133.

utilities exceed the MPS, increasing the share of C&S savings the utilities get credit for would not change the results.

6.1.6. Assumptions Regarding GHG Reductions

The calculation of net cost savings from energy efficiency measures includes recognition of the reduction in GHG emissions. The Energy Division report included recognition of the avoided cost benefits due to GHG reductions at the rate of $12 per ton averaged over time.

The IOUs propose instead that the avoided cost benefits for GHG reductions should be valued at $30 per ton. In the EM&V Decision, the Commission directed Energy Division to update the avoided cost GHG adder to $30 per ton. For purposes of assessing the value of avoided GHG emissions resulting from the deployment of energy efficiency investments going forward, the most current adopted avoided cost should be used. However, in the context of the 2006-2008 incentive true-up, consistent with our prior determination to rely on ex ante assumptions, we find the $12 amount used by Energy Division to be appropriate. We shall utilize the Energy Division value of $12 per ton for purposes of valuing GHG reduction for the 2006-2008 true-up. This value represents the amount in effect during the 2006-2008 cycle and therefore is relevant for purposes of the true-up of net benefits. The $30 per ton GHG value was intended to apply to post-2008 programs, and thus does not properly apply to the 2006-2008 program cycle.

6.1.7. Treatment of Interactive Effects

Historically, the energy savings profile of a given efficiency measure has been considered in isolation. The impact of installing a single CFL, for instance, is estimated as the difference in its own energy consumption and that of the

incandescent bulb it is assumed to replace. However, in some cases, measures have systems impacts, or "interactive effects," which are not captured by baseline comparisons along a single parameter. Some energy efficiency measures, for example, produce less heat than the measure they replace. Depending on factors, including where they are installed, certain energy efficiency measures may increase the need for heating or decrease the need for air conditioning.

The Energy Division reviewed available studies and produced scenario calculations to incorporate interactive effects for both residential and commercial measures for a number of lighting and appliance measures, resulting in negative therm impacts and positive kWh demand impacts for select measures. The data underlying the Commission's currently adopted goals, however, do not reflect these assumptions regarding interactive effects. For comparison, the Scenario Analysis Report also showed the savings impacts assuming exclusion of all interactive effects.

In D.09-05-037, we affirmed that interactive effects affect net energy savings and are thus appropriate for incorporation into the DEER update, stating that:

> It is of paramount importance to maintain the analytical rigor of our methodologies to count savings. Compromising the technical integrity of our counting methodologies is tantamount to compromising the reliability of energy efficiency as a resource. Given the priority energy efficiency holds in our loading order, we are duly committed to reflecting our best knowledge regarding savings in DEER. (D.09-05-037 at 21.)

We also recognized, however, how interactive effects can have a significant effect on assumed savings achievement, particularly for the dual-fuel utilities, PG&E and SDG&E. In D.09-05-037, we determined the adjustment that

was appropriate to reduce 2009-2011 therm goals to recognize the applicable interactive effects, but we did not separately address in that proceeding how the utilities' therm goals for the 2006-2008 cycle should be adjusted for interactive effects. Because interactive effects, particularly those experienced by dual-fuel gas and electric utilities, had not been considered in previously adopted energy efficiency goals, we found it reasonable in D.09-05-037 to make adjustments to SDG&E and PG&E's goals for therm savings for purposes of their 2009-2011 gross savings goals. Drawing from the Energy Division Verification Report's analysis of 2006-2007 data, we thereby reduced the adopted 2009-2011 therm savings goals for PG&E by 26% and for SDG&E by 22%.

We concluded in D.09-12-045 that the issue of whether to apply the full 26% reduction to PG&E's 2006-2008 therm goals for purposes of computing 2006-2008 RRIM earnings would be addressed in this true-up

However, under the ex ante approach adopted herein, we have relied on Scenario 3, Template 1, which does not make any adjustments to the energy savings results to address interactive effects. We note that to the extent the utilities under this scenario already exceed the MPS, reducing the goals to account for interactive effects would have no bearing on the outcome. A reduction in the goals would only serve to increase the degree to which the IOUs are found to exceed the MPS, but would not impact the calculation of the PEB, nor the shared savings rate we have adopted herein.

7. Assignment of Proceeding

John A. Bohn is the assigned Commissioner, and Thomas R. Pulsifer is the assigned ALJ for this proceeding.

8. Comments on Alternate Proposed Decision

The alternate proposed decision of Commissioner Peevey in this matter was mailed to the parties in accordance with Section 311 of the Public Utilities Code and comments were allowed under Rule 14.3 of the Commission's Rules of Practice and Procedure. Comments were filed on _____ and reply comments were filed on _____.

Findings of Fact

1. In D.07-09-043, the Commission adopted the RRIM to encourage achievement of Commission-adopted energy efficiency goals, and to extend California's commitment to making energy efficiency the highest energy resource priority.

2. The RRIM as adopted was to rely upon independent evaluation of energy savings by the Energy Division Reports which were to serve as the basis for interim and final incentive payments, as warranted.

3. The RRIM as adopted in D.07-09-043 required Energy Division to evaluate and verify the underlying parameters impacting savings resulting from and attributable to the utility programs and apply these evaluations to 2006-2008 results to ensure that ratepayers weren't required to pay incentives for savings that did not materialize.

4. D.08-01-042 modified the original RRIM design to require updating measure load impacts prior to the payout of interim claims to mitigate the risk of extremely large swings in earnings (positive or negative) at the final earnings true-up.

5. The process established for utilities to qualify for incentive earnings to meet and exceed Commission-adopted energy efficiency savings goals has proven to be quite controversial, because of disputes about methodologies used

in calculating energy efficiency savings accomplishments, the sensitivity of incentive earnings to differences in the savings calculation methodologies, and more fundamental questions regarding the reasonableness of using updated ex ante assumptions and parameters to assess the utilities' energy efficiency program performance under the incentive mechanism.

6. The IOUs have already been awarded two interim incentive payments for the 2006-2008 cycle, totaling $143.7 million.

7. Outstanding disputes as to the final true-up amount of incentive payments relate to assumptions regarding (a) the validity of both the ex ante and ex post (updated) total net cost savings subject to incentive earnings, (b) the applicable percentage share of the net savings to be assigned as incentive earnings.

8. Although challenges have been raised regarding the transparency of the process for review and verification of data underlying the Energy Division evaluation of energy efficiency savings accomplishments, the Energy Division has followed Commission-established protocols for the vetting of the evaluated findings.

9. While the details of various measures used to estimate *ex post* parameters of savings measures may be subject to differences of professional judgment, no party has demonstrated that the overall evaluation produced by Energy Division should be disregarded as the basis for determining the total amount of energy savings resulting from the utility programs.

10. The calculation of the 2006-2008 earnings true-up amounts vary significantly depending upon whether assumed energy savings are derived using unmodified *ex ante* values, versus updated *ex post* measures for key parameters.

11. The use of unmodified *ex ante* parameters drawn from the 2005 DEER for purposes of deriving savings achievements subject to the 2006-2008 incentive earnings true-up may produce results that differ from our assessment of the actual savings the utility portfolios provided, to the extent the 2005 DEER parameters changed over the 2006-2008 period.

12. Reliance on ex ante assumptions for purposes of calculating incentive claims under the RRIM does not require the Commission to rely on these same assumptions in quantifying the ultimate impact of energy efficiency programs on energy savings and utility resource needs.

13. The incentive mechanism as adopted in D.07-09-043 was predicated on the notion that the utilities can exert control over the magnitude of savings actually realized from their energy efficiency portfolios and can be reasonably expected to anticipate changes in the impact of various energy efficiency programs and measures in their portfolios and modify their portfolios and programs accordingly.

14. Because the mechanism as modified by D. 08-01-042 required the *ex ante* assumptions to be updated, the utilities assumed additional risk associated with changes in the underlying parameters and resulting impacts on measure savings and attribution over the 2006-2008 period over which they had no control.

15. Over the course of the 2006-2008 a number of key parameters changed dramatically from what had been used for purposes of developing and assessing the utilities 2006-2008 energy efficiency portfolios. Changes in these parameters were such that the savings associated with the measures and programs in the utility portfolios were substantially reduced from what had been anticipated when the portfolios were approved.

16. The shared savings rate in D.07-09-043 was adopted based on the Commission's judgment of what was reasonable given the risk to ratepayers of issuing incentives for savings that did not ultimately materialize and the risk to the utilities of reduced incentives or penalties.

17. Eliminating the ex ante updating requirements (a) reduces the risk of lowered incentive earnings or penalties to the utilities substantially, and (b) increases the risk that ratepayers may pay incentives for supply-side savings that do not ultimately materialize.

18. The ability of the IOUs to make adjustments to their portfolios throughout the 2006-2008 cycle was constrained by the availability and timing of robust information regarding the various parameters that influence energy efficiency savings estimates and attribution.

19. Under the adopted RRIM formula, each IOU is eligible for a shared savings percentage that varies depending on the degree of success in achieving energy efficiency savings in relation to a "minimum performance standard."

20. Based on Scenario 3 in Energy Division's 2006-2008 Scenario Analysis Report, and applying a shared saving rate of 7% to the calculated net benefits, the additional incentives the utilities would earn are as follows: PG&E: $29.1 ; SCE: $18.6 million; SDG&E: $5.1 million; SCG: $9.9 million.

21. The values set forth in Appendix A constitute a reasonable approximation of energy efficiency savings derived in accordance with Commission policies for use in calculating the incentive formula covering the 2006-2008 program cycle.

22. Using Scenario 3 in Energy Division's 2006-2008 Scenario Analysis Report the IOU achievements exceed the minimum performance standard and based upon application of a 7% shared savings rate result in positive incentives over the 2006-2008 period.

23. Scenario 3 includes the 2004-2005 cumulative savings in the goals against which the utilities 2006-2008 energy efficiency programs are compared. Because under this scenario the utilities' energy efficiency programs yield savings that are found to exceed the MPS, excluding the 2004-2005 goals would result in the utilities being found to exceed the MPS by more.

24. In D.10-04-029, the Commission determined that it is appropriate to count 100% of codes and standards savings toward achievement of the 2010-2012 cumulative goals. This determination was based on the finding that better technical data about savings is now available as compared to when the original 50% determination was made in D.05-09-043. That same determination supports the recognition of 100% of C&S advocacy savings for deriving the MPS for the 2006-2008 true-up. However, because all the IOUs energy efficiency programs are found to exceed the MPS under the ex ante approach adopted herein, and we apply a fixed 7% shared savings rate to the net benefits, increasing the extent to which Codes & Standards count toward the MPS would not alter the results.

Conclusions of Law

1. The final true-up of incentive earnings for the 2006-2008 cycle should be evaluated based upon ex ante assumptions, adjusted for independently verified installations of savings measures as set forth in Appendix A.

2. The shared savings rate should be reduced to 7% in lieu of the 9% and 12% rates adopted in D.07-09-043 to account for the reduced risk of lowered incentive earnings or penalties the utilities face under an ex ante approach to assessing program performance relative to the energy efficiency goals.

3. The Order Instituting Rulemaking which established Rulemaking 09-01-019 expressly contemplated making changes to the Risk/Reward Incentive

Mechanism and how that mechanism would be applied for purposes of conducting the true-up of the 2006-2008 incentive claims.

4. Parties have been provided a fair opportunity to participate in the public review of the Energy Division Evaluation Report.

5. Based on a reasonable approximation of IOU savings accomplishments for the 2006-2008 cycle, as set forth in Appendix A, the IOUs are eligible for additional incentive payments for the 2006-2008 pursuant to the RRIM as modified herein.

6. The incentive earnings calculated based on the assumptions set forth in Appendix A balance the goals of encouraging and rewarding the utilities' aggressive implementation of energy efficiency programs with the risk that actual savings achieved over the course of the 2006-2008 cycle may be less than what was anticipated due to changes in the underlying assumptions on which the utilities' portfolios rely.

7. The 2006-2008 RRIM true-up should be finalized in accordance with the ordering paragraphs as adopted below.

8. Since the Energy Division finalized calculations incorporates correction of the E3 calculator used to determine natural gas energy efficiency benefits as referenced in the SDG&E and SCG's Petition to Modify D.09-12-045 filed February 19, 2010, and because the additional amounts owed to them pursuant to Appendix A of this decision exceed the shortfall in their interim claims, that filing is hereby rendered moot.

O R D E R

IT IS ORDERED that:

1. The true-up of Risk/Reward Incentive Mechanism Savings for the 2006-2008 program cycle is hereby concluded. The total amount of incentives the utilities have earned over the 2006-2008 period is identified in Appendix A. Given the prior amounts the utilities have already received in interim claims, the utilities are owed the following amounts in true-up payments: Pacific Gas and Electric: $29.1; Southern California Edison: $18.6 million; San Diego Gas & Electric: $5.1million; Southern California Gas: $9.9 million. These constitute the final and complete resolution of payments due Pacific Gas and Electric Company, San Diego Gas & Electric Company, Southern California Edison Company, and Southern California Gas Company for the 2006-2008 cycle.

2. The Commission shall separately address in a subsequent decision in this proceeding whether, or subject to what conditions incentive payments and/or penalties may be due for 2009, 2010, or for future years.

3. In view of the corrections incorporated in the Energy Division Evaluation Report and the additional incentive reward amounts owed to San Diego Gas & Electric Company and Southern California Gas Company for the final 2006-2008 true-up, the Petition to Modify D.09-12-045, filed by San Diego Gas & Electric Company and Southern California Gas Company is rendered moot.

4. This proceeding shall remain open for consideration of issues relating to prospective modifications to the Risk/Reward Incentive Mechanism.

This order is effective today.

Dated _____, at San Francisco, California.

APPENDIX A

Adopted Basis for Assessing Risk/Reward Incentive Mechanism True-Up

The following shall apply for evaluating whether or to what extent any utility is entitled to additional earnings or to penalties pursuant to the final true-up of 2006-2008 Risk/Reward Incentive Mechanism (RRIM) results:

1. Use the calculation of the Performance Earnings Basis utilizing Scenario 3, Template 1 from the Energy Division's 2006-2008 Scenario Analysis Report.
2. Apply a 7% shared savings rate to the Performance Earning Basis provided the utility achieves at least 85% of the Energy Efficiency Goals.

The table on the next page demonstrates that under the approach adopted herein, all of the IOUs savings performance exceeds 85% of adopted goals.

The total calculated RRIM earnings are $206,378,244 over the 2006-2008 period based on a 7% shared savings rate applied to the Scenario 3, Template 1 Performance Earnings Basis. Subtracting interim amounts already received pursuant to D.08-12-059 and D.09-12-045 of $143,694,555, results in a final true-up payment of $62,683,689.

Calculation of RRIM Earnings Using Assumptions Listed on the Preceding Page

Third Earnings Claim (PY2006-2008 True-Up)

	PG&E	SCE	SDGE	SoCalGas	Total
Savings Goals		PY 2004-2008			
Total Cumulative Savings (GWH)	4,313.0	4,788.0	1,175.0		**10,276.00**
Total Peak Savings (MW)	936.0	1,006.0	223.0		**2,165.00**
Total Cumulative Natural Gas Savings (MMTh)	64.4		13.1	76.5	**154.00**
MPS Goals (80% of goal)					
Total Cumulative Savings (GWH)	3,450.4	3,830.4	940.0		**8,220.80**
Total Peak Savings (MW)	748.8	804.8	178.4		**1,732.00**
Total Cumulative Natural Gas Savings (MMTh)	51.5		10.5	61.2	**123.20**
Dead Band (65% of goal)					
Total Cumulative Savings (GWH)	2,803.5	3,112.2	763.8		**6,679.40**
Total Peak Savings (MW)	608.4	653.9	145.0		**1,407.25**
Total Cumulative Natural Gas Savings (MMTh)	41.9		8.5	49.7	**100.10**
Achieved Savings Towards MPS					
EE Portfolio Savings (adjusted ex-ante)		PY 2006-2008			
Total Cumulative Savings (GWH)	3,963.1	3,257.6	696.4		**7,917.10**
Total Peak Savings (MW)	657.2	588.9	124.2		**1,370.24**
Total Cumulative Natural Gas Savings (MMTh)	65.6		6.6	66.5	**138.77**
50% C&S Savings (adjusted ex-ante)		PY 2006-2008			
Total Cumulative Savings (GWH)	157.9	162.9	37.0		**357.80**
Total Peak Savings (MW)	30.6	31.5	7.2		**69.30**
Total Cumulative Natural Gas Savings (MMTh)	2.2		0.3	3.5	**5.95**
04-05 EM&V Adjusted EE Portfolio Savings		PY 2004-2005			
Total Cumulative Savings (GWH)	998.2	1,497.9	342.6		**2,838.67**
Total Peak Savings (MW)	212.3	270.5	59.3		**542.09**
Total Cumulative Natural Gas Savings (MMTh)	19.1		4.5	11.1	**34.71**
EM&V Adjusted LIEE Savings		PY 2004-2008			
Total Cumulative Savings (GWH)	123.5	107.1	27.8		**258.35**
Total Peak Savings (MW)	24.9	22.3	6.9		**54.10**
Total Cumulative Natural Gas Savings (MMTh)	5.7		1.2	4.6	**11.56**
Total Savings		PY 2004-2008			
Total Cumulative Savings (GWH)	5,242.7	5,025.5	1,103.7		**11,371.93**
Total Peak Savings (MW)	925.1	913.1	197.6		**2,035.72**
Total Cumulative Natural Gas Savings (MMTh)	92.6		12.7	85.8	**190.99**
MPS Individual Metric Performance					
Percent of GWH Goal	122%	105%	94%		111%
Percent of MW Goal	99%	91%	89%		94%
Percent of MMTh Goal	144%		97%	112%	124%
MPS Average Metric Performance	**121%**	**98%**	**93%**	**112%**	**110%**
PEB					
TRC Net Benefits	$ 1,374,776,934	$ 854,584,569	$ 195,456,427	$ 193,173,191	$ 2,617,991,121
PAC Net Benefits	$ 1,709,544,364	$ 1,246,652,046	$ 302,080,755	$ 350,522,495	$ 3,608,799,660
PEB	$ 1,486,366,077	$ 985,273,728	$ 230,997,869	$ 245,622,959	$ 2,948,260,634
PEB at MPS Threshold	**$ 1,486,366,077**	**$ 985,273,728**	**$ 230,997,869**	**$ 245,622,959**	**$ 2,948,260,633**
Earnings/Penalty Cap	$ 180,000,000	$ 200,000,000	$ 50,000,000	$ 20,000,000	$ 450,000,000
Earnings Rate	**7%**	**7%**	**7%**	**7%**	
Total Earnings	$ 104,045,625	$ 68,969,161	$ 16,169,851	$ 17,193,607	$ 206,378,244
Penalties	NO	NO	NO	NO	
Total Penalties	No Penalty	No Penalty	No Penalty	No Penalty	$ -

(END OF APPENDIX A)