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Decision 05-04-051 April 21, 2005

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Examine the Commission's Future Energy Efficiency Policies, Administration and Programs.	Rulemaking 01-08-028 (Filed August 23, 2001)

INTERIM OPINION: UPDATED POLICY RULES FOR POST-2005 ENERGY EFFICIENCY AND THRESHOLD ISSUES RELATED TO EVALUATION, MEASUREMENT AND VERIFICATION OF ENERGY EFFICIENCY PROGRAMS

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1. Introduction and Summary[1]

Today's decision builds upon Decision (D.) 04-09-060 and D.05-01-055 in establishing the goals, policies and administrative framework that will guide future energy efficiency programs funded by the ratepayers of the four largest investor-owned utilities (IOUs): 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).

By D.04-09-060, we established aggressive energy savings goals to reflect the critical importance of reducing energy use per capita in California. For the three electric IOUs, these goals reflect our expectation that energy efficiency efforts in their combined service territories should capture on the order of 70% of the economic potential and 90% of the maximum achievable potential for electric energy savings, based on the most recent studies of that potential. These efforts are projected to meet 55% to 59% of the IOUS incremental electric energy needs between 2004 and 2013. On the natural gas side, our adopted savings goals represent a 116% increase in expected savings over the next decade, relative to the status quo.[2] We established a three-year cycle for updating our savings goals,

[1] Attachment 1 describes the abbreviations and acronyms used in this decision.

[2] See D.04-09-060, pp. 2-3.

in concert with a three-year program planning and funding cycle for energy efficiency ("program cycle").

Our next task was to develop an administrative structure for future energy efficiency programs designed to meet the objectives of the Energy Action Plan, including the load reductions reflected in our savings goals. To this end, in D.05-01-055 we returned the IOUs to the lead administrative role in energy efficiency program selection and portfolio management--a role that they fulfilled in California prior to electric industry restructuring.[3] As part of our overall approach to quality control, we established an advisory group structure, competitive bidding minimum requirements and a ban on affiliate transactions. These safeguards were designed to ensure that the program selection process would not favor programs designed and implemented by the IOUs over those designed and implemented by third-parties. At the same time, we clarified our expectations that the focus for spending ratepayer dollars in the future would be to meet or exceed our savings goals by capturing the most cost-effective energy efficiency resources as possible over both the short- and long-term.

In addition, we established an administrative structure for evaluation, verification and measurement (EM&V) that created a clear separation between "those who do" (the Program Administrators and program implementers) and "those who evaluate" the program or portfolio performance. In particular, for program year (PY) 2006 and beyond, Energy Division will assume the management and contracting responsibilities for all EM&V studies that will be used to (1) measure and verify energy and peak load savings for individual

[3] Accordingly, we refer to the IOUs collectively as "Program Administrators" throughout this decision.

programs, groups of programs and at the portfolio level, (2) generate the data for savings estimates and cost-effectiveness inputs, (3) measure and evaluate the achievements of energy efficiency programs, groups of programs and/or the portfolio in terms of the "performance basis" established under Commission-adopted EM&V protocols, and (4) evaluate whether programs or portfolio goals are met. In recognition that the Program Administrators and program implementers need access to market information to perform their responsibilities, we adopted a process that allows them to manage a limited subset of evaluation studies as long as there is no potential for conflict due to the nature of the study, and as long as Energy Division makes the final selection of contractors.

Per D.05-01-055, the Program Administrators will file their proposed PY2006-PY2008 energy efficiency program plans and applications for our consideration by June 1, 2005. Following a Commission decision on those plans, they will solicit competitive bids, make their final program selections, and submit them for our review in a second compliance filing, subject to advisory group review.

Today's decision updates the existing Energy Efficiency Policy Manual to reflect policy rules (Rules) that articulate our objectives for energy efficiency, and that provide guidance to the Program Administrators, program implementers and interested parties for the development of program portfolios for 2006 and beyond. Among other things, the Rules describe threshold requirements for cost-effectiveness, and discuss how to calculate and present cost-effectiveness results for our consideration. They also summarize our determinations in D.05-01-055 regarding competitive bidding, advisory groups, affiliate rules and other administrative structure issues. In addition, the Rules describe our expectations regarding the information that Program Administrators will file with their

program planning applications and during program implementation. They also describe the process for updating the Energy Efficiency Policy Manual in the future, provide a guide to reference documents and include a list of common terms and definitions. (See Attachment 3.)

In addition to updating the Rules in the Energy Efficiency Policy Manual, today's decision addresses the threshold EM&V issues raised in workshops and establishes a process for developing specific EM&V protocols in the coming months. In particular, we define the metric for evaluating the performance of energy efficiency programs designed to displace or defer more costly supply-side resources ("resource programs"). We refer to this metric generically as the performance basis of a program or set of programs. For resource programs, the performance basis will be calculated on the basis of the net resource benefits (energy savings benefits minus costs) produced by the energy efficiency program(s), coupled with a minimum performance threshold tied to our adopted savings goals. This approach will encourage investments in cost-effective energy efficiency that are also designed to produce savings consistent with adopted resource planning assumptions. We prefer this approach to a performance basis that looks only at the level of kilowatt-hours (kWh), therms or kilowatt (kW) load reductions, as some parties propose. Ignoring the level of net benefits associated with program activities would, in our opinion, create a strong incentive for Program Administrators and program implementers to produce energy or demand reductions at any cost---even if the costs were higher than the supply-side alternatives these programs are designed to defer or displace.

We also clarify that the cost-effectiveness tests used to evaluate the performance basis (as well as to evaluate program proposals on a prospective basis) should utilize non-price components of avoided costs, including

environmental adders. These are real costs to all ratepayers that are avoided with the deployment of energy efficiency, and should not be ignored in the evaluation of resource benefits. For this purpose, we will use the avoided costs adopted for the evaluation of energy efficiency programs in our avoided cost rulemaking, R.04-04-025.

We reject, however, proposals by some parties to present value the future benefits of energy efficiency programs utilizing a "societal" discount rate that is, by definition, significantly lower than market rates. As discussed below, we view energy efficiency in today's policy environment as a viable resource alternative to more expensive supply-side investments. The discount rate should facilitate comparisons among alternative investments. We therefore direct that the IOUs' weighted cost of capital, as adopted by this Commission, be used in all cost-effectiveness calculations for energy efficiency.

In response to comments on the draft decision, we also clarify that solar water heaters should be eligible energy efficiency measures in 2006 and beyond, under certain conditions. This is appropriate because the effect of solar water heating is indistinguishable from other efficiency measures that reduce natural gas or electricity consumptions at the end user site (such as water heater wraps, pipe insulation, etc.). In addition, including solar water heaters as an energy efficiency measure is consistent with the manner with which we established the energy efficiency savings goals, since the savings potential studies we relied upon included this measure in developing estimates of that potential. However, we also require that this new measure be cost-effective on a stand-alone basis to be eligible for funding. In other words, energy efficiency funds should not be used to encourage the deployment of non cost-effective solar water heating technologies by bundling them with cost-effective energy efficiency measures.

In terms of evaluating the performance of Program Administrators after program implementation, we adopt the recommendation of Natural Resources Defense Council (NRDC), Office of Ratepayer Advocates (ORA) and others that any incentives or performance awards to Program Administrators should be based on portfolio performance rather than on individual program performance. A portfolio level approach will encourage innovation and allow for some risk-taking on pilot programs and/or measures in the portfolio. However, calculating the performance basis at the program level is appropriate for measuring program implementer performance. In addition, we clarify that EM&V costs should be allocated at the total portfolio level, rather than program by program.

This decision also addresses the threshold issue of what assumptions used to calculate the performance basis (e.g., program costs, number and types of measures, first-year savings of measures and persistence of savings over time.) should be "trued up" on an *ex post* (post-installation) basis in order to evaluate the performance of the Program Administrators and program implementers after each program cycle. The parties to this proceeding agree that program costs and participation levels, including the number and type of measures or equipment installed, should be trued up based on *ex post* verification. They also agree that *ex post* measurement studies of per-unit lifecycle kWh, therm and kW savings should be used to inform and update *ex ante* (pre-installation) assumptions for future program years. They disagree, however, on whether the results of these *ex post* studies should also be used to adjust the performance basis of energy efficiency resource programs for prior years. In addition, parties disagree on how frequently these studies should be undertaken for either purpose.

As discussed below, we examine the historical relationship between *ex ante* assumptions and the results of *ex post* studies in considering the positions of the

parties. We adopt an approach that strikes a reasonable balance of the following concerns: How to ensure quality control, maintain the credibility of the programs, and at the same time recognize the difficulty in tying the performance basis to true-up studies that are conducted many years after program implementation. As a general policy, we will require for PY2006 and beyond that per unit kWh, kW and therm savings be reevaluated through load impact studies to adjust the performance basis for prior program years. We will consider exceptions to this general policy 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 energy savings. Savings persistence studies will not be tied to the performance basis, but will still be performed to inform future planning. However, we may revisit this policy and revise it if, at a future date, there is evidence that the results of the persistence studies are significantly different from the *ex ante* estimates.

We also adopt the consensus position of the workshop participants on how to evaluate the performance of non-resource energy efficiency programs. These include audits and targeted information programs to customers, advertising and marketing, and programs to support codes and standards. The performance basis of these and other non-resource programs will need to be further defined as we move forward with the development of specific EM&V protocols to identify measurable outputs and associated evaluation methodologies.

The next step for EM&V is to develop measurement and verification protocols consistent with today's decision, define a cycle for EM&V that is integrated into the program planning and resource planning process, and adopt specific EM&V plans and associated budgets for the PY2006-PY2008 programs. In today's decision we outline the goals, process and schedule for this next step.

In terms of process, Energy Division and California Energy Commission (CEC) staff will develop the EM&V submittals required by this decision drawing upon IOU technical expertise and other resources as necessary. Energy Division and CEC staff (referred to as "Joint Staff" in this decision) will hold public workshops to obtain and incorporate feedback before finalizing the joint proposals. We require that the Joint Staff submittals be distributed for further comment as an attachment to an ALJ ruling, and we establish an expedited approval process for their consideration.

Recognizing that it will be difficult, if not impossible, for these submittals to be developed and commented upon in a budget vacuum, we establish an EM&V funding guideline of 8% of total energy efficiency program funds. We emphasize that this 8% level is to be used as a general guideline for the EM&V planning process, and represents an average annual percentage over the 3-year funding cycle. Before adopting a specific EM&V funding level for PY2006-PY2008, we will need to consider the costs of proposed EM&V activities within the context of available personnel and contracting resources, the cost and expected value produced by each program, among other factors.

As discussed in this decision, the EM&V plans and associated budget for PY2005-PY2008 will reflect decisions concerning the type and frequency of EM&V studies conducted for each program and the major study parameters utilized for each study (e.g., sample design, monitoring duration and schedule, approaches undertaken to evaluate and minimize bias, etc.) In today's decision we describe the types of protocols that the Joint Staff will need to develop for this purpose and include in the EM&V submittals. To further facilitate the development of these protocols and the EM&V plans for PY2006-PY2008, we provide guidance regarding the frequency and priority of EM&V activities.

We recognize that the timeline for completing the remaining EM&V filings is ambitious. However, an expedited schedule is required in order to put EM&V plans and associated protocols in place for the roll-out of PY2006-PY2008 programs. We expect Joint Staff to fully utilize the expertise of Energy Division's EM&V consultant(s), the IOUs and other EM&V experts as necessary to assist with the development of the EM&V submittals. We also call on all the stakeholders to work collaboratively in the months ahead. As we stated in D.05-01-055: "Working together, all stakeholders will benefit from the result of these efforts: The full recognition of energy efficiency as a viable resource that can be relied upon to reduce the demand for energy in California."[4]

2. Procedural History

Following the January 23, 2004 prehearing conference (PHC) in this proceeding, Assigned Commissioner Susan Kennedy directed Energy Division to conduct workshops to address EM&V-related issues. In particular, she directed that the workshops focus on defining the basis for evaluating the performance of energy efficiency "resource programs" and on adopting standardized procedures and protocols for measuring that performance basis:

> "The performance basis for energy efficiency programs designed primarily to replace more costly supply-side options (resource programs) will be different than those designed for other purposes (e.g., informational programs). Over time, it will be very useful to develop standardized EM&V procedures and protocols, including standardized performance basis, for all types of energy efficiency programs and during all phases of program implementation. As discussed at the PHC, a Framework Study that proposes a comprehensive approach to EM&V will be

[4] D.05-01-055, p. 13.

> published by the end of February and posted on the Commission's Website. [footnote omitted.] However, I believe it is prudent to bifurcate our efforts to address EM&V-related issues by first addressing those most directly related to performance incentive design. Irrespective of the Commission's determinations on administrative structure and incentives, we need to standardize the performance basis and measurement/verification protocols associated with resource programs for a range of other purposes, such as the ongoing assessment of energy savings potential, feedback and refinement of program design, as well as overall program evaluation.
>
> "In D.03-12-062, the Commission discussed its interest in developing an incentive mechanism for the energy efficiency component of energy procurement that is consistent with overall procurement goals and incentive policies. It was within this context that the Commission referred the evaluation of energy efficiency performance incentives to this proceeding. [Footnote omitted.] The priority for workshops on Incentives and Related EM&V should therefore be on: (1) defining the performance basis of programs in terms of net resource benefits, and (2) updating existing procedures and protocols for measuring that performance basis, generally referred to as load impact evaluation."[5]

In response to this directive, Energy Division in collaboration with CEC staff held a series of workshops on the following EM&V topics during 2004:

- Workshops #1 and #1a (April 2, 2004 and September 13, 2004): Performance basis and measurement/verification protocols associated with Resource programs.
- Workshop #2 (August 11, 2004): Integrating measurement of the performance basis into the energy efficiency program planning

[5] Assigned Commissioner's Ruling Establishing Schedule for Addressing High Priority Issues During 2004, and Notice of Workshop on Administrative Structure, February 6, 2004, pp. 7-8.

and implementation cycles and utility procurement planning cycles.

- Workshop #3 (September 14, 2004): Developing a performance basis for non-resource energy efficiency programs.
- Workshop #4 (November 10, 2004): Process for Developing Program Evaluation Implementation Protocols.

Attachment 2 presents the list of organizations or individuals that participated in some or all of the EM&V workshops, and a listing of those organizations that filed pre-workshop and post-workshop written comments. Energy Division and CEC staff (hereinafter referred to as "joint staff" or "staff") jointly prepared written summaries of consensus and non-consensus positions of the parties on the EM&V-related issues addressed in each workshop. Those workshop summaries are available on the Commission's Website at http://www.cpuc.ca.gov/static/industry/electric/energy+efficiency/rulemaking/eeevaluation.htm.

At the direction of the assigned Administrative Law Judge (ALJ), the utilities submitted supplemental comparison tables of historical data on resource programs. These tables compared forecasted estimates of net resource savings (resource benefits minus costs) with the net resource savings calculated using program costs and participation rates verified after program implementation, and using per measure savings reevaluated based on the results of post-installation measurement studies.[6] Opening comments on this supplemental information were filed on February 18, 2005, by SCE, PG&E, jointly by SGD&E

[6] Administrative Law Judge's Ruling Issuing Compilation of E-Table Data for Pre-1998 Energy Efficiency Programs and Requesting Further Comment, January 27, 2005.

and SoCalGas and jointly by the ORA, NRDC and The Utility Reform Network (TURN). Reply comments were filed on February 25, 2005 by SCE and PG&E.

Concurrent with the EM&V workshop and comment process described above, the Commission addressed administrative structure issues during 2004 through workshops, comments and oral argument. The Commission's draft decision on administrative structure for post-2005 programs was issued for comment on November 29, 2004 and finalized on January 25, 2005.[7] In both the draft and final decision, the Commission highlighted the need to update the Energy Efficiency Policy Manual adopted in D.01-11-066 and directed the Assigned Commissioner and ALJ to establish a procedural schedule and process for updating this document "as soon as practicable."[8]

Accordingly, the Assigned Commissioner issued a ruling on December 17, 2005 that set forth a comment schedule and workshop process for updating the rules, terms and definitions (Rules) for post-2005 energy efficiency program activities. On December 30, 2004, the assigned ALJ issued a proposed set of Rules for consideration by all interested parties. Pre-workshop comments were filed on February 1, 2005 by the American Council for an Energy-Efficient Economy, California Climate Action Registry, Center for Small Business and Environment/San Francisco Small Business Network and Small Business California (CSBN), NRDC, Proctor Engineering, City and County of San Francisco (CCSF), County of Los Angeles, Efficiency Partnership, Women's

[7] D.05-01-055.

[8] *Ibid.*, Ordering Paragraph 13.

Energy Matters (WEM), ORA and TURN (joint filing), the IOUs (joint filing) and SCE.

The ALJ held two days of workshops on the proposed Rules on February 15 and 16, 2005, with Energy Division assistance. Over 50 organizations were represented. In addition to many of the parties listed above, workshop participants included representatives from: The San Diego Regional Energy Office, Intergy Corporation, Proctor Energy Group, Ecology Action, Staples Marketing, Univsion, GeoPraxis, Yolo Energy Efficiency Project, Insulation Contractors Association, Navigant Consulting, Sacramento Municipal Utility District, ICF Consulting, Robert Mowris and Associates, among others. (See Attachment 2.)

In the following sections we describe the key issues raised in the workshops and written comments, briefly summarize areas of consensus and non-consensus among the parties as well as staff recommendations, where applicable, and present our determinations. Our discussion is intended to highlight the general areas of debate, rather than present a detailed accounting of each party's position on each and every issue related to the Rules or EM&V.

3. Updated Energy Efficiency Policy Manual for Post-2005 Programs

As noted in the December 17, 2005 Assigned Commissioner's Ruling, the current Energy Efficiency Policy Manual is clearly outdated. It was created in 2001 under an interim administrative structure with the Commission responsible for program selection and portfolio management. In particular, much of the current document is structured to provide guidance to IOU and non-IOU program implementers submitting proposals to Energy Division for staff review. Our recent decision on administrative structure (D.05-01-055) returns the IOUs to

the program administrator role, and places quality control, advisory and primary EM&V responsibilities with our Commission staff. For energy efficiency activities beginning in 2006, the IOUs will take lead responsibility for selecting and managing a portfolio of energy efficiency programs that meet or exceed our annual and cumulative energy savings goals, with input from advisory groups and the public, and subject to our review and approval. The Energy Efficiency Policy Manual needs to be updated to reflect this new administrative structure.

More importantly, the policies and funding criteria contained in the current Energy Efficiency Policy Manual were established prior to the development of the Energy Action Plan, which places energy efficiency back at the forefront of resource procurement activities in California. In particular, the plan establishes a loading order of energy resources that requires California to first optimize "all strategies for increasing conservation and energy efficiency to minimize increases in electricity and natural gas demand" before turning to supply-side resources."[9] By D.04-09-060, we translated this policy into specific, numerical goals for electricity and natural gas savings, underscoring that California's "one high-level, overriding goal guiding its energy efficiency efforts [is] to pursue all cost-effective energy efficiency opportunities." The Energy Efficiency Policy Manual, and the Rules contained therein, have also been updated to reflect this overriding goal in guiding program development and program evaluation.

[9] *Energy Action Plan*, 2003, p. 3. A copy of the plan is available on the Commission's website at www.cpuc.ca.gov.

The ALJ's initial draft of proposed rules (Draft Rules), followed by the pre-workshop comments and workshop discussion provided valuable input into this updating process. We summarize our determinations regarding the major issues raised by parties, and present the updated Energy Efficiency Policy Manual in Attachment 3. In Sections II-XI of that document, we present the policy rules governing energy efficiency activities (Rules), commencing in 2006.

3.1. Energy Efficiency Policy Objectives and Program Funding Guidelines (Rules II.1-II.10)

This section of the Rules articulates the overriding goal of energy efficiency as the pursuit of "all cost-effective energy efficiency opportunities over both the short- and long-term." (Rule II.2) Workshop participants expressed varying levels of concern that the pursuit of this goal could create lost opportunities in the process if the IOUs focused narrowly on exploiting the most cost-effective measures first. We have adopted language that discusses the potential for lost opportunities, but also recognizes that this potential is considerably reduced now that the IOUs are required to meet or exceed aggressive annual and cumulative savings goals. We also direct the IOUs to develop strategies to minimize lost opportunities in the design and implementation of programs, and to describe those strategies in their program plan applications. In addition, in response to workshop comments, we have broadened the definition of "lost opportunities" to recognize that they can occur if energy efficiency options that offer long-lived, cost-effective savings are not exploited in tandem with other load-reduction

technologies and distributed generation technologies being installed at the site (e.g., solar water heating or photovoltaics).[10]

The Rules also echo our observations in D.05-01-055 that capturing the most cost effective energy efficiency resources as possible over both the short- and long-term "is the most equitable way to distribute program benefit."[11] (See Rule II.3.) To this end, we direct the IOUs to manage the portfolio of programs to meet or exceed the Commission-adopted short-term and long-term savings goals by pursuing the most cost-effective energy efficiency programs first, while minimizing lost opportunities. (Rule II.5.) Following these guidelines will, in our view, dictate the appropriate balance for portfolio funding of resource programs among market sectors (e.g., residential, industrial and commercial). We also direct the IOUs to include in their portfolio a selection of statewide marketing and outreach programs, upstream market transformation programs, information and education programs, support for codes and standards and other activities in their proposed portfolios that support our short-term and long-term goals. In particular, IOUs are to allocate a sufficient portion of portfolio funding to statewide marketing and outreach to continue and build upon the success of the existing program. (Rule II.6.)

In their comments on the draft decision, TURN and Proctor Engineering contend that the policy rules require more explicit requirements to strategically

[10] Although our discussion of lost opportunities refers to both water heating and other (photovoltaic) solar technologies that may be installed on site, for reasons discussed in this decision only solar water heaters are added as an eligible measure for energy efficiency funding.

[11] D.05-01-055, *mimeo.*, p. 126.

impact critical peak procurement. In particular, these parties argue that the program plans that are being presented by the IOUs at advisory group meetings overemphasize lighting measures and insufficiently recognize the value of efficient air conditioners. In their view, this results from two factors: (1) the differential between peak and non-peak avoided costs adopted by the Commission in the avoided cost proceeding and (2) the relatively high "load factor" reflected in the Commission's adopted savings goals.[12]

With respect to avoided costs, we note that the Commission's interim avoided costs for energy efficiency, as adopted in D.05-04-024, establish a differential between peak and non-peak avoided costs on the order of 4 to 1. Proctor Engineering argues that a much higher differential should be established to reflect critical peak pricing periods, and that efficient air conditioners would be more cost-effective than efficient lighting measures using this higher differential. We note that the Commission is in the process of evaluating critical peak pricing in the context of avoided costs (R.04-04-025) and demand response programs (A.05-01-016 et al.). However, it is premature to anticipate the results of that evaluation in terms of what critical peak avoided costs might be adopted. Moreover, it is far from clear how critical peak avoided costs would be used in the context of energy efficiency measures that are not fully dispatchable. Nonetheless, we do recognize the need to continue to refine and improve upon our interim methodology for avoided costs over time, to ensure that the valuation of energy efficiency savings is as accurate as possible. As discussed in

[12] A load factor is the ratio of gigawatt hours (GWh) of consumption (or savings) divided by megawatts (MWs) of peak consumption (or savings).

D.05-04-024 and Assigned Commissioner rulings in R.04-04-025, we fully intend to do so.

Similarly, we recognize today, as we did in D.04-09-060, that the conversion factors used to calculate MW peak energy efficiency savings goals may need to be updated in the future. In that decision, we multiplied our adopted GWh savings goals by a 20% conversion factor to establish the corresponding peak MW reduction goals. We adopted a 20% conversion factor because (1) it represented a reasonable average of the conversion factors observed for the projected 2004/2005 program year measure savings and (2) doing so resulted in peak savings that would not exceed the total maximum achievable peak savings potential projected over the 10-year period. TURN and Proctor Engineering contend that this relatively low conversion factor means that lighting programs alone will meet the MW goals, and therefore provides the IOUs' with an incentive to overemphasize this measure relative to others with low load factor/critical peak savings. TURN therefore recommends that we consider increasing the conversion factor used to develop the savings goals, among other options to steer the portfolio design towards low load factor/critical peak savings measures.

In response, we note that we lack a sufficient record for modifying the conversion factors (and by definition, MW goals) in D.04-09-060, or for addressing the issue of what conversion factor we should use for future updates to those goals. However, we certainly did not intend for adopted conversion factors to dictate the load factors of future programs—in fact, we anticipated that the opposite would be true: "[A]s we look to develop energy efficiency programs

for 2006 and beyond that more aggressively reduce peak loads, we may need to adjust the conversion factor upwards."[13]

In sum, we are not persuaded by the arguments of TURN and Proctor Engineering that the specific modifications to conversion factors or avoided costs they suggest in their comments should be adopted at this time, or in this procedural forum. However, we do believe that the Rules should be modified to reflect the need to ensure reliability in the near term, by encouraging aggressive programs that target measures with most of their energy savings during peak time periods. We modify Rule II.5 accordingly.

Several parties propose language that would add additional goals for program funding or guidelines for program design. For example, CSBN proposes that the Rules establish a priority for energy efficiency investments for underserved or hard-to-reach markets. NRDC proposes language directing the IOUs to seek a balance among programs targeted to residential and non-residential, retrofit and new construction, and statewide and local applications. NRDC also proposes language that would require the IOUs to make marketing and outreach materials available in multiple languages, to a reasonable extent, in order to ensure that programs reach language minority customers. Efficiency Partnership recommends that we establish a minimum funding level (7%) for statewide marketing and outreach activities, and require in the Rules that this funding be coordinated by and through a single statewide campaign. CCSF recommends that the IOUs be required to identify all savings opportunities at a

[13] D.04-09-060, *mimeo.*, p. 27.

customer site and develop a plan to achieve these savings within a given timeframe.

We agree with the observation of one workshop participant that, "if everything is a high priority, then nothing is a high priority."[14] In particular, we believe that the appropriate mix of programs across market sectors and geography as well as appropriate program designs will reveal themselves as the IOUs focus on meeting or exceeding our short- and long-term goals pursuant to Rule II.5. Nonetheless, the Rules recognize that non-resource programs are also needed to support the savings goals, such as statewide outreach and marketing and support for codes and standards. However, rather than establishing specific funding levels or program design parameters in our Rules, we adopt general language suggested by workshop participants that recognizes the importance of such programs, and leave to the program planning process the development of specific program designs and funding proposals. (See Rule II.6.) In response to earlier written comments in this proceeding, we also include language that directs the IOUs to explore ways in which marketing and outreach activities can support the Climate Change Action Registry.[15] (Rule II.7.)

This section of the Rules also recognizes the need to increase the current level of funding for emerging technologies in the program plans for PY2006 and beyond. In the ALJ Draft Rules, the language specified a funding level based on

[14] Mr. Bob Burt, Insulation Contractors Association.

[15] See Assigned Commissioner's Ruling Soliciting Comment on Ways to Incorporate the Protocols and Information Collected by the Climate Change Registry into this Proceeding, August 31, 2004, and Comments of the Climate Change Registry and other interested parties to this proceeding.

a recent white paper on emerging technologies issued by the CEC. During the workshop process, the IOUs worked with CEC staff to develop alternative language for this section of the Rules, together with a proposal for increased funding that the IOUs will propose to the advisory groups for inclusion in the PY2006 program plans, subject to our approval. The attached Rules now reflect the alternate language on emerging technologies developed during the workshop process. (Rules II.8 and II.9.)

3.2. Cost-Effectiveness (Rules IV.1-IV.11)

This section of the Rules describes the cost-effectiveness tests to be used in evaluating the program portfolios, and how they are to be computed. We describe these tests in greater detail in Section 4 below, when we address the performance basis for resource programs. A prospective showing of cost-effectiveness for the entire portfolio of ratepayer-funded energy efficiency activities and programs is a threshold condition for eligibility for ratepayer funds. (Rule IV.6.)

WEM recommends that each program should also be required to pass the required tests of cost-effectiveness in order to be eligible for funding. We disagree. As we discuss in Section 4 below, a portfolio level approach to evaluating cost-effectiveness and performance basis is necessary to encourage innovation and allow for some risk taking on pilot programs and/or new measures in the portfolio.[16] Nonetheless, the Rules require that the results of the

[16] We do, however, require that fuel-substitution programs pass the required cost-effectiveness tests on a program level, in order to ensure that such programs create resource value. We also require that solar water heating installations are cost-effective on a stand-alone basis in order to be eligible for funding, as a condition for expanding

Footnote continued on next page

cost-effectiveness tests be considered when evaluating specific resource program proposals. (Rule IV.4.)

In response to comments on the draft decision, we also clarify that EM&V costs are included in calculations of cost-effectiveness and the performance basis, but should be allocated at the total portfolio level, rather than program by program.[17] As we have stated in the past, EM&V expenditures represent a true cost of acquiring energy efficiency resources. Therefore, these costs should not be ignored when evaluating the cost-effectiveness of energy efficiency on either a prospective basis, or after the programs have been implemented.[18] However, as we have also reasoned, these costs should be considered on a portfolio-level basis, rather than program-by-program for both practical and policy reasons. [19] Moreover, as PG&E points out, allocating EM&V costs at a total portfolio level (as in the past) will allow for economies of scale when designing EM&V by allowing for aggregation of studies.

Workshop participants also debated the issue of what discount rate should be used to translate future year benefits and costs into current year ("present value") terms in calculating the cost-effectiveness of energy efficiency programs.

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the definition of energy efficiency to include solar water heating. See Rules IV.7 and IV.10.

[17] SCE and ORA also ask us to clarify today whether performance incentives are included in the tests of cost-effectiveness. As we stated in D.04-09-060 (at page 36), we will address this issue when we consider the incentive mechanism proposals in a later phase of this rulemaking, or its successor proceeding.

[18] See, for example, D.94-10-059, 57 CPUC 2d at 71.

[19] *Id.*

NRDC proposed using a 5% nominal discount rate. NRDC argues that this relatively low discount rate is appropriate because energy efficiency investments reduce societal risk and provide cost savings and environmental benefits that remain valuable well into the future. ORA proposes the use of an 8.15% nominal discount rate, which is the standard default discount rate that has been used in energy efficiency cost-effectiveness tests for the past several years.[20]

For the reasons discussed in 4.2.1 below, we reject NRDC's proposal to use a lower "societal" discount rate to present value the cost and benefit streams associated with energy efficiency programs. Moreover, we note that the risk factors and environmental benefits that NRDC refers to in justifying a lower discount rate are already reflected in the avoided cost adders that we use to value the savings benefits of energy efficiency programs. Instead, since energy efficiency resource programs focus on avoiding or deferring more costly supply-side investments, we believe that the most appropriate discount rate to use is the IOUs' current weighted cost of capital.

Therefore, the Rules specify that the cost-effectiveness tests should utilize the most recent Commission-adopted values for the weighted cost of capital. Instead of using different values for each IOU, Energy Division should post a reasonable "average" of the Commission-adopted values to be utilized in discounting the costs and benefits of energy efficiency programs across all of the IOU service territories.[21] Energy Division should post this average value on the

[20] Energy Efficiency Manual, version 2, p. 19.

[21] The current authorized cost of capital for the IOUs ranges between approximately 7.6% and 8.7%, depending upon the IOU.

Commission website with the most recent version of the Standard Practice Manual and provide the location of that posting in the references section of the Energy Efficiency Policy Manual, which will also be posted on the Commission website.

During the workshop discussion, a representative from PG&E requested clarification as to whether the costs used to calculate cost-effectiveness tests should include the IOUs' overhead and other costs associated with energy efficiency activities that are recovered through base rates. Apparently, only the IOU costs recovered through specific energy efficiency funding sources (public goods charge (PGC) or procurement rates) are currently reported for PY2004-PY2005 programs, although the IOUs have been required to report costs collected in base rates for prior program years. We affirm the ALJ's direction that *all* of the program administrators' costs related to energy efficiency programs, irrespective of their funding source, be once again included in the calculation of the Total Resource Cost (TRC) and Program Administrator Cost (PAC) tests of cost-effectiveness. To do otherwise would shield those costs from review during program planning and implementation. Without delay, Energy Division should clarify its reporting requirements to ensure that all such costs are counted, not only in compiling data on current programs per D.05-01-055 (Ordering Paragraph 5), but also in the reporting of estimated costs for future program proposals, the calculation of cost-effectiveness , and the evaluation of the performance basis after program implementation.

In addition, workshop participants discussed how best to ensure continuity of the input assumptions and calculations for the tests of cost-effectiveness presented to the Commission during the program planning process. We have included language in the Rules clarifying that the Database for Energy

Efficiency Resources (DEER) should be the source of all assumptions that are used to estimate load impacts, to the extent possible. (Rule IV.11.) Funded by ratepayers, this database has been jointly developed by the CEC and this Commission, with input and support from the IOUs and other interested stakeholders. It is designed to be the primary source for energy savings and cost-effectiveness input assumptions for program planning. We believe it is reasonable to continue to use DEER for this purpose. As discussed in Section 4 below, the EM&V protocols will include a schedule and process for updating DEER on a regular basis.

In addition, we will adopt the ALJ's workshop recommendation that Energy Division or its consultants independently review the cost-effectiveness calculations presented by the IOUs in their PY2006-PY2008 program applications and compliance filings. The IOUs should work closely with Energy Division to ensure that the input assumptions and cost-effectiveness calculations required for this review are clearly presented in work papers, without delay.

3.3. Other Issues

In their pre-workshop comments, NRDC and ORA suggested adding additional sections to the Draft Rules to reflect the Commission's recent decision on energy efficiency administrative structure, D.05-10-055. These included sections on Advisory Groups, Performance-Based Risk and Reward Incentive Mechanisms, Reporting Requirements and Affiliate Rules. We have made such additions in the attached Rules.

In addition, we have made other corrections and clarifications to the Draft Rules in response to pre-workshop comments and the workshop discussion. In particular, we respond to SCE's concern that the collection and allocation of PGC

funds must comply with Pub. Util. Code §§ 381, 381.1, 399 and 890-900 by adding language from the current version of the Energy Efficiency Policy Manual that reflects these statutory requirements.[22] (Rule II.10.)

We also respond to the concerns expressed by the County of Los Angeles, Proctor Engineering and others at workshops that the need for peak demand reductions is not adequately reflected in our Rules by clarifying that the savings goals established by the Commission are expressed in terms of annual and cumulative peak megawatt load reductions. (Rule II.2.) In addition, as discussed above, we add language to the Rules directing the IOUs to "demonstrate in their program planning applications for PY2006-PY2008 how their proposed portfolio will aggressively increase overall capacity utilization and lower peak loads through the deployment of low load factor / high critical peak saving measures." (Rule II.5.)

In its comments on the Draft Rules, ORA proposed specific "fund shifting rules" that would define how much flexibility the IOUs have to shift funds from one program to another during the three-year program cycle. We prefer to take the approach recommended by the ALJ, namely, to allow the IOUs and their advisory groups to develop fund-shifting rules for our consideration over the coming weeks, and submit them for our review with the PY2006-PY2008 program plans. The Rules reflect this approach.

In developing these fund shifting rules for our consideration, the IOUs and their advisory groups should also address the issue of adding new programs to the portfolio during the three-year program cycle. We believe that the IOUs

[22] See Energy Efficiency Manual, version 2, p. 24.

should have some flexibility to add program designs or measures that were not considered during the program planning process, but that reveal themselves during the course of the program cycle as being capable of improving the cost-effectiveness of their portfolios, improving portfolio resource savings, or both. In addition, the fund shifting rules will need to address the circumstances under which the IOUs can shift funds out of programs identified in the program plans that are not performing, or underperforming relative to other energy efficiency options, as well as expand programs that are clearly "winners" in terms of cost-effectiveness and savings as the implementation unfolds.

On the one hand, we seek to provide the IOUs with sufficient flexibility so that they can effectively manage their portfolios during the program cycle to meet the Commission-adopted savings goals with a cost-effective portfolio of programs. For example, we would not want to continue the current practice of requiring ALJ authorization for numerous fund shifting and contract extension requests during each program cycle. At the same time, the Commission will need to adopt program plans that are meaningful in its funding decisions in order to commit such a large amount of ratepayer funding to them and to inform resource planning decisions. Therefore, we anticipate that most of what is contained in the program plans and compliance filings approved by the Commission will be implemented without major changes. The challenge will be to develop fund shifting rules that achieve the appropriate balance.

At the workshops, the County of Los Angeles and others recommended that the reporting requirements be carefully reviewed to ensure that the frequency of reports, amount of data and format provide information that is useful to the Program Administrators and Energy Division for their respective administrative functions, but not overly onerous to program implementers. We

share this concern, not only for the program implementers but for the IOU program administrators as well. In consultation with the Assigned Commissioner and ALJ, Energy Division should develop program-specific, portfolio-level and financial reporting requirements for PY2006 and beyond that are responsive to these concerns. To this end, Energy Division is already planning to thoroughly review the frequency and amount of data provided monthly to it under the current reporting requirements, with input from the IOUs, interested stakeholders and the public.

Today's adopted Rules also respond to workshop comments of the Climate Change Action Registry by adding language that recognizes that energy efficiency is critical to achieving reduction in the environmental impacts, including greenhouse gas emissions, associated with the State's energy consumption. (Rule II.1.) As discussed at the workshops, we intend to closely coordinate with the Climate Change Action Registry so that the environmental adders we develop in our avoided cost proceeding will continue to be informed by the work that organization is undertaking to develop protocols for quantifying and reporting the greenhouse gas emission reductions associated with energy efficiency programs.

In response to comments on the Draft Decision, we clarify that solar water heaters should be eligible energy efficiency measures for PY2006 and beyond, under certain conditions. This is appropriate because, as NRDC, ORA, CCSF and others point out, the effect of solar water heating is indistinguishable from other efficiency measures that reduce natural gas or electricity consumption at the end user site (such as water heater wraps, pipe insulation, etc.). In contrast, photovoltaic and solar-thermal electric technologies generate electricity and therefore should be considered renewable technologies. In sum, solar water

heating *reduces* end-use energy consumption, while photovoltaic and solar-thermal electric are energy *production* technologies. Moreover, as NRDC points out in its comments on the draft decision, the potential studies that we relied upon in establishing the energy savings goals for energy efficiency included solar hot water heating as an energy efficiency measure.

For the above reasons, we find that solar water heating should be included in the definition of energy efficiency measure for the purpose of considering funding solar water heating installations with energy efficiency funds. However, we also agree with SDG&E/SoCalGas that the contribution of solar water heating to the energy efficiency portfolio should depend upon its cost-effectiveness. In particular, energy efficiency funding should not be used to encourage the deployment of non cost-effective solar water heating technologies (i.e., by bundling them with cost-effective energy efficiency measures). Therefore, we will require that solar water heating installations be cost-effective on a stand-alone basis to be eligible for funding. The IOUs should work with their advisory groups to determine whether and how to best incorporate this new measure into their 2006-2008 energy efficiency portfolios and to develop quality warranty and installation requirements. Rule IV.7 and the appended definition of "energy efficiency measure" now reflect the inclusion of solar water heaters and our cost-effectiveness requirement for this measure.

In their comments on the draft decision, NRDC and other parties request clarification regarding whether program implementers can "count" savings associated with early replacement programs (i.e., by using the existing inefficient equipment as the baseline rather than the current code), similar to the current appliance recycling programs. As SDG&E/SoCalGas note, the Rules do not prohibit early replacements, but appropriate EM&V protocols should be

developed to specify how to quantify savings from them. [23] We are particularly concerned, however, with the notion that customers would be approached to replace functioning air conditioners (for example) without recognizing that there is still capital value to that equipment for the remaining useful life—even if the customer can save energy by replacing it sooner. Joint Staff should present its recommendations on this and other EM&V issues related to early replacement programs in the EM&V protocol submittals required by this decision.

Finally, PG&E requests us to count "spillover effects" in the calculations of cost-effectiveness and performance basis, that is, the effect of a program to induce other customers to invest in energy efficiency even without a program incentive. PG&E proposes to add a definition of "spillover effects" and modify the definitions of "net to gross" and "incremental measure cost" contained in the draft decision to reflect this proposal. We do not make these changes. In our view, the speculative nature of any attempts to quantify these indirect benefits significantly reduces their applicability as an analytical tool at this time. Moreover, as TURN points out in its reply comments, discounting the accounting of free-ridership through "spillover" would make it particularly difficult to attribute indirect program benefits to education and information programs, without double-counting those benefits.

[23] We note, however, that the Commission is considering whether to lift the age restriction on eligible refrigerators and freezers under the current Residential Appliance Recycling Program in response to a Petition for Modification of D.03-12-060 filed by SCE. Nothing in today's decision is intended to prejudge this issue. Any and all references to "early replacement programs" in today's decision is subject to the Commission's final determination in response to SCE's Petition, with respect to the eligibility of refrigerators and freezers for such programs.

4. Performance Basis for Energy Efficiency Resource Programs

As discussed in the February 6, 2004 Assigned Commissioner's ruling, the first priority for the EM&V workshops was the development of a metric for evaluating the performance of energy efficiency programs designed to displace or defer more costly supply-side resources ("resource programs"). We refer to this metric generically as the "performance basis" of a program or set of programs. By way of background, it is useful to review our past and present policies for defining the performance basis of resource programs and for measuring that basis.

By D.94-10-059, the Commission established a program performance basis for pre-1998 resource programs that was based on a cost-effectiveness metric comprised of a weighted average of the Total Resource Cost (TRC) test and Utility Cost (UC) tests. Both tests produce a net present dollar value for "net resource benefits" (program benefits minus program costs), but from somewhat different perspectives. The TRC test looks at the net resource benefits of an energy efficiency measure, program or portfolio of programs from the perspective of whether or not energy efficiency is cost-effective as a resource option compared to the supply-side options it would defer or replace. Therefore, the test measures the net effect of energy efficiency based on the total costs of the program, including both the participating customer's and the utility's (or more generically, the program administrator's) costs. The TRC test attempts to quantify the changes in total resource costs for the utility and ratepayers within the relevant service territories.

The costs for the TRC test are the equipment or measure costs[24], including installation, operation, maintenance and administration costs, no matter who pays for them. In addition, costs for this test include the increase in supply costs for the periods in which load is increased. The benefits are the avoided supply-side costs—the reduction in transmission, distribution, generation and capacity costs valued at marginal cost. In the Societal Test variant of the TRC test, the effects of certain externalities are included, such as the benefit of avoided environmental damages, and a societal discount rate is used to calculate net present value of costs and benefits. The TRC-Societal Test attempts to quantify the change in the total resource costs to society as a whole, rather than only to the service territory (the utility and its ratepayers).[25]

The UC test, which has subsequently been renamed the Program Administrator Cost (PAC) test, looks at cost-effectiveness from the perspective of the administrator of energy efficiency programs. The benefits are the same as the TRC test, but costs are defined differently to include the costs incurred by the program administrator, and not the participating customer. That is, this test does not include the participating customers' out-of-pocket expenses, but does include

[24] The TRC looks at the "incremental" measure cost (not the full cost) when an energy-efficiency appliance or measure promoted through the program is installed in lieu of the standard (less efficient) appliance/measure that would have been installed, without the financial incentive or outreach program.

[25] The most current (October 2001) version of the California Standard Practice Manual with a description of the tests of cost-effectiveness for demand-side programs and projects can be found at the following website: http://www.cpuc.ca.gov/static/industry/electric/energy+efficiency/rulemaking/03eeproposalinfo.htm.

the financial incentives paid to the customer to install the measure, along with other program costs incurred by the administrator.

For pre-1998 resource programs, the Commission weighted the TRC and UC tests to develop a metric of net benefits that could be used to evaluate program and portfolio performance. More specifically, the TRC was weighted two-thirds and the UC test was weighted one-third in calculating this performance basis. Shareholder incentive payments were based on the net benefits (total resource savings less costs) that resulted from this calculation, once a threshold level of net resource savings was achieved.

Clearly defined protocols for measuring the energy efficiency program performance basis were originally adopted in D.93-05-063[26] and were defined in the "Protocols and Procedures for the Verification of Costs, Benefits, and Shareholder Earnings from Demand-Side Management Programs" (Protocols). The Protocols set out a schedule for the timing of various performance basis measurement studies and defined the procedures for conducting those studies. The Protocols were primarily based on the *ex post* measurement of program savings, that is, by measuring energy savings from a program's energy efficiency

[26] These Protocols were later revised in March 1998 pursuant to Decisions 94-05-062, 94-10-059, 94-12-021, 95-12-054, 96-12-079, 98-03-063, and 99-03-056. They are posted on the Commission's website at http://www.cpuc.ca.gov/static/industry/electric/energy+efficiency/rulemaking/eeevaluation.htm.

measures or equipment through onsite metering, billing analysis, or other measurement techniques. *Ex post* in this context refers to the measurement of a program's savings metrics (e.g., first year load impacts, effective useful life of measure(s), technical degradation of equipment over time, etc.) during or after a program's completion.

In the current Commission Energy Efficiency Policy Manual, program hold-back and profit payments are dispersed by the Commission based on programs achieving their approved energy savings targets.[27] Under this approach, program energy and demand savings are the current performance basis used by the Commission for evaluating resource energy efficiency programs. The performance basis is calculated based on the average achievement percentage of the various (kWh, kW, therms) program energy savings goals.

Program energy savings are currently measured by verifying equipment or measure installation in combination with *ex-ante* energy savings assumptions. *Ex ante* refers to assumed energy savings (also referred to as "deemed savings") associated with a particular energy efficiency measure or equipment prior to its installation, that is, it refers to using program metric assumptions that are 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.

[27] The current Energy Efficiency Policy Manual can also be found at: http://www.cpuc.ca.gov/static/industry/electric/energy+efficiency/rulemaking/03eeproposalinfo.htm.

4.1. Positions of the Parties and Staff Recommendations

The parties to this proceeding are generally split on the issue of whether to establish the performance basis of energy efficiency resource programs based on 1) energy savings / demand reductions measured by kilowatt-hours (kWhs) and (kWs) versus 2) net resource benefits measured in dollars of savings (benefits minus costs) to ratepayers. SCE and other proponents of using energy savings / demand reductions as the performance basis argue that this approach aligns program performance most directly with the energy savings and demand reduction goals set by policymakers. They also contend that this approach is much simpler to implement and creates less confusion because it does not require an assessment of resource benefits (or avoided costs) or the various cost components calculated for the TRC and UC tests. In contrast, SDG&E, NRDC and others argue that the performance basis should be based on net resource benefits in order to 1) give administrators the incentive to achieve their energy savings as cost-effectively as possible, and 2) take into account the differential value of energy savings occurring at different times and in different locations.

ORA proposes to reconcile these two approaches by calculating a metric that takes the ratios of the actual versus targeted levels for 1) TRC cost-effectiveness, 2) peak kW savings and 3) energy kWh savings, and weights them by 60%, 20% and 20%, respectively. Staff proposes to combine the two approaches by establishing energy savings / demand reduction thresholds in combination with a net resource benefits performance basis. More specifically, staff recommends using the TRC-Societal Test and UC calculations of net resource benefits (giving each equal weighting) as the performance basis for resource programs. However, program administrators could only qualify for performance incentives based on these net resource benefits once they have

achieved a minimum threshold of kWh energy savings and KW demand reductions from their programs. Staff recommends that the minimum threshold of energy savings should be 15-20% below the program projected / adopted energy and demand savings for the time period.

4.2. Discussion

Before specifically addressing the issue of performance basis, it is important to reiterate that our overriding goal for energy efficiency is to place energy efficiency first in the loading order for resource procurement by investing in all cost-effective energy efficiency. As discussed in Section 3 above, this overriding goal is reflected in the Energy Action Plan and in the policies we have articulated in this proceeding and in our procurement rulemaking, R.01-10-024 and its successor R.04-04-003.[28] It is within this context that we have established explicit numerical goals for electricity and natural gas savings for the IOUs. As described in D.04-09-060, the goals we adopted for 2006 and beyond represent less than the full economic potential of energy efficiency in recognition of specific barriers to capturing all cost-effective energy efficiency over the near term. Nonetheless, our expectations are clear: We are not simply pursuing the maximum level of energy savings through ratepayer investments in energy efficiency. Rather, we are looking to maximize the net resource benefits (benefits minus costs) of those investments.

[28] See, for example, D.02-10-062 issued in R.01-10-024, *mimeo.*, p.27; D.04-01-050 in R.01-10-024, *mimeo*, p. 9; D.04-09-060 issued in this proceeding, mimeo, p. 35 and finding of fact 25.

4.2.1. Performance Basis Metric for Resource Programs

A performance basis for energy efficiency resource programs that is based on net resource benefits is consistent with our objectives for energy efficiency, as discussed above. In contrast, adopting a performance basis metric that ignores the level of net resource benefits produced by the programs, as SCE and Aloha Systems propose, would create a strong incentive for program administrators and implementers to produce energy savings or demand reductions at any cost—even if the costs were higher than the supply-side alternatives these programs are designed to defer or displace. Moreover, adopting a performance basis metric that does not consider the avoided costs of energy savings or demand reductions fails to recognize that when and where those savings occur can produce very different levels of ratepayer benefits.[29]

At the same time, we recognize that relying solely on net resource benefits to assess the performance of energy efficiency programs may not necessarily encourage performance that is consistent with the kWh, therm and kW savings goals we have established for energy efficiency, and in turn, with the energy and demand reductions that are incorporated into the IOUs' long term procurement plans. More specifically, energy efficiency programs could meet or exceed forecasts of net resource benefits, and thus be considered to be performing very well, while falling short of the kW and kWh levels that they were assumed (and

[29] Aloha Systems proposes to mitigate this problem by grouping energy savings targets into time periods so that the performance basis would have an energy and demand savings threshold for each time of use period. However, this proposal does not address the problem with ignoring program costs, discussed above, or reflect other factors that can affect the value of a kWh or kW saved—such as transmission constraints.

relied upon) to contribute to resource procurement. For example, this could happen if (1) the energy savings levels used in projecting the net resource benefits of energy programs during the program planning stage were inconsistent with the Commission-adopted savings goals, (2) a program maintained the forecasted difference between costs and benefits but did so at lower absolute levels of costs and benefits than projected, or (3) a program achieved forecasted net resource benefits by focusing on higher valued energy savings at peak times (or in transmission-constrained areas), but achieved less in kWh or kW savings than the goals for that period.

As staff points out, the first circumstance can be avoided by requiring that the energy savings used in projecting the net resource benefits for energy efficiency programs during the program-planning phase be consistent with the Commission-adopted kW and kWh savings goals. We also agree with staff that the third circumstance, where a program achieves higher valued energy savings (e.g., by saving less overall energy but doing so at critical peak times) than anticipated, is not a negative outcome from a resource planning perspective. To address other circumstances where performance based on achieving net resource benefits could fall short of expected kW or kWh savings, we will adopt staff's proposal that a minimum threshold level for these savings be established.

We prefer this approach to ORA's proposal, which in our view is overly complicated, produces significant redundancy among the metrics included in the performance basis, and does not clearly promote performance that is consistent with the Commission's goals. In contrast, a performance basis for energy efficiency resource programs that reflects net resource benefits, coupled with a minimum threshold based on savings goals, will encourage investments in cost-

effective energy efficiency designed to produce kWh and kW savings that are consistent with adopted resource planning assumptions.

However, we take issue with staff's recommended equal weighting of the two tests of cost-effectiveness included in the performance basis. We have consistently favored the TRC test for ranking and funding demand-side programs designed to avoid or defer more costly supply-side resources, for reasons we have articulated in numerous decisions over the years.[30] At the same time, due to the dual-cost issue unique to demand-side resource options, we have recognized the need to incorporate the PAC test (formerly the UC test) into program funding and bid evaluation procedures to encourage the program administrator to minimize program costs as it strives to maximize resource benefits.[31] We believe that a heavier weighting of the TRC test more appropriately reflects our policies, and will therefore adopt a two-thirds TRC to one-third PAC weighting in calculating the performance basis of energy efficiency resource programs. We note that this is the same weighting we adopted in D.94-10-059 for the performance basis of resource programs that were implemented prior to 1998.

Today's adoption of a performance basis that weights these two tests does not, however, alter our requirement that the portfolio of energy efficiency programs should pass both the TRC and PAC tests of cost-effectiveness on a prospective basis during the program planning stage. (Rule 6.) We also

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[30] See, for example, D.92-02-075, 43 CPUC 2d, pp. 334-335; D.92-09-080, 45 CPUC 2d, pp. 574-577.

[31] See Attachment 4 for a description of this dual-cost issue.

recognize, as we did in D.94-10-059, that there is a possibility of a portfolio of programs producing net benefits based on the performance basis we adopt today but *not* passing the TRC test of cost-effectiveness, even though this possibility is small given the relative weightings of the two tests.[32] We will consider how best to ensure that ratepayers are fully protected against the possibility of paying out performance incentives on a portfolio of energy efficiency programs that does *not* perform better than the supply-side resources it was intended to replace in a future phase of this proceeding, when we address the issue of a risk/reward incentive mechanism for energy efficiency.

We also clarify that both the TRC and PAC tests should utilize the non-price components of avoided costs (e.g., environmental adders) being developed for the evaluation of energy efficiency programs in our avoided cost rulemaking, R 04-04-025. These are real costs to all ratepayers that are avoided with the deployment of energy efficiency, and should not be ignored in the evaluation of resource benefits for either test. However, staff's recommendation that we utilize the Societal Test variation of the TRC would also treat certain cost components as transfers (e.g., tax payments and interest payments). We prefer to treat those components as explicit resource costs, as we do in evaluating supply-side options.

Moreover, the Societal Test would involve utilizing a "societal" discount rate that would be difficult to quantify—and one that is different from the discount rates we utilize to evaluate supply-side resources. We note that the 8.15% default discount rate referred to in the current version of the Energy

[32] See our discussion of this issue in D.94-10-059 (57 CPUC 2d, p. 39).

Efficiency Policy Manual was originally established during the electric industry restructuring years, when PGC funds were used for programs designed to transform the market until we could withdraw ratepayer funding and energy efficiency funding became fully "privatized." During that short-lived transition period, we evaluated PGC-funded energy efficiency using a "public purpose test" that was essentially a renaming of the Societal variant of the TRC to better reflect its application under the restructuring industry framework. The 8.15% rate represented a 5% real "societal" discount rate, adjusted for inflation.[33] However, we are viewing energy efficiency in today's policy environment as a viable resource alternative to more expensive supply-side resources, and the TRC and PAC tests recognize this perspective by utilizing a market discount rate, rather than a lower societal discount rate.[34]

Therefore, except by valuing non-price factors into the avoided costs, we will not incorporate the Societal variant into either the TRC or PAC component of the performance basis. As discussed in Section 3 above, we will utilize a discount rate that reflects the IOUs' weighted cost of capital, as adopted by this Commission. We note that this approach is consistent with the manner in which we evaluated pre-1998 resource programs, and provides us with a consistent

[33] See Resolution E-3592, April 1, 1999, pp. 28-29 and Attachment B, Appendix B.

[34] We note that the Standard Practice Manual also recognizes the difficulty in making comparisons with alternative investments when a lower societal discount rate is used for energy efficiency resources. See Standard Practice Manual (October, 2001), p. 19, footnote 4. This document is posted at: http://www.cpuc.ca.gov/static/industry/electric/energy+efficiency/rulemaking/eeevaluation.htm.

basis for present-valuing costs and benefits when comparing energy efficiency resources with the IOUs' supply-side investment alternatives.

While we adopt in principle a minimum performance threshold for performance that is directly tied to our adopted kW and kWh savings goals, we do not specify the specific threshold levels today. In D.04-09-060, we directed that proposals for a risk/reward mechanism for energy efficiency should consider using the cumulative savings goal in a particular year as a threshold for incentive payments, subject to a reasonable uncertainty band around the numerical levels.[35] By today's decision, we clarify that the performance basis *will* include such a threshold, but leave the specifics of how best to establish that level to a later phase of this proceeding, when we have an opportunity to evaluate all aspects of a risk/reward mechanism.

4.2.2. Portfolio Versus Program-Specific Evaluation

In terms of evaluating the performance of Program Administrators after program implementation, we agree with NRDC, ORA and others that the performance of the portfolio of resource programs as a whole should be the focus, and any incentives or performance awards to Program Administrators should be based on portfolio performance rather than individual program performance. This portfolio level approach is necessary to encourage innovation and allow for some risk taking on pilot programs and/or measures in the portfolio. However, as several parties suggest, calculating the performance basis at the program level is appropriate to measure program implementer

[35] D.04-09-060, *mimeo.*, p. 36.

performance. As discussed in Section 3.2, EM&V costs should be allocated at the total portfolio level for the purpose of calculating performance basis and cost-effectiveness, rather than program by program.

4.2.3. Performance Basis True-Up

As discussed above, all parties agree that participation levels, including the number and type of measures or equipment installed, must be trued up relative to *ex ante* assumptions in evaluating program performance for a particular program year.[36] Parties that favor the net resource benefits approach to performance basis also agree that the program costs used in that calculation must be trued up to actual expenditures. There is also consensus that per-unit kWh and kW savings assumptions should be evaluated on an *ex post* basis in order to inform and update *ex ante* assumptions for future program years. We are in full agreement with these principles and discuss in Section 5 the process by which they should be translated into specific EM&V protocols in the near future.

The threshold issue we need to address here, then, is whether the results of *ex post* measurement studies that evaluate per-unit lifecycle kWh, therm and kW savings should also be used to adjust the performance basis for energy efficiency resource programs for prior years. As discussed at some length in this decision, we have a history of doing both: For pre-1998 resource programs we required

[36] However, there appears to be consensus that incremental measure costs, or "IMC" (which is a cost component in the TRC test) should *not* be trued up in calculating the performance basis for a prior year. Instead, workshop participants suggest that those costs be evaluated periodically (every 3-5 years) and the results of those studies be used to update subsequent *ex ante* estimates of IMC. (See Workshop Report #1, June 8, 2004, p. 6.) Our reference to "program costs" in the context of performance basis true-ups does not include IMC.

ex post reevaluation of per unit kW, kWh and therm savings assumptions for most measures spanning a 7-10 year measurement period, and the performance basis for the completed program year was adjusted based on this reevaluation. Under current EM&V protocols, we do not require that the per unit savings assumptions used to evaluate programs for funding purposes in a prior program year be adjusted on an *ex post* basis, for any program or measure.

In considering this issue, it is useful to evaluate the relative impact that *ex post* evaluation of kWh, therm and kW savings had on the calculation of performance basis for energy efficiency programs subject to our pre-1998 Protocols. At the request of the assigned ALJ, utility staff compiled data from the reported E-tables in each Annual Earnings Assessment Proceeding (AEAP) for the pre-1998 program years and summarized it in the format presented in Attachment 5**.** As described above, the performance basis under the pre-1998 protocols (also referred to as "performance earnings basis" or "PEB") represented a net benefits calculation based on a weighted average of the TRC and UC (currently PAC) test of cost-effectiveness. The E-Tables provide the following information in a standardized format for each program year and by utility:

1) *Ex ante* PEB, based on forecasts of all performance parameters for the program year in question. These are the forecasts during the program planning process when programs are selected for funding;
2) PEB adjusted for *ex post* verification of program costs and program participation (including types and numbers of measures installed at each location), but still using the *ex ante* forecasts of lifecycle kW and kWh savings per measure (or "per unit") presented in (1) above;
3) PEB adjusted for verified costs, verified program participation *and* the results of *ex post* first-year load impact studies; and

4) PEB adjusted for all the performance factors in (3) plus the results of *ex post* persistence studies. The combination of the first-year load impact studies and subsequent persistence studies produce the *ex post* estimates of lifecycle kW, kWh and therm savings that are applied to the installed energy efficiency measures.

Our review of this data indicates that the largest true-up adjustments to the *ex ante* performance basis occurred in the first earnings claim, where actual program costs and verified program participation were substituted for the *ex ante* values. For example, in 1996, the *ex ante* ("target") PEB the IOUs combined was a forecasted $140,078,000 in net benefits. Adjustments based on verified costs and participation (types and number of measures actually installed) increased the *ex ante* estimate by 113% to $298,944,000 which accounted for 96% of the *ex post* net benefit value ($311,540,000) for that program year.

The data also indicates that, for the IOUs combined, the results of the first-year load impact studies (conducted for the second earnings claim) and the persistence studies (conducted in the third or fourth year) generally cancelled each other out over time. That is, while the *ex ante* assumptions of first-year load impacts were higher than the subsequent *ex post* load impact studies revealed, the *ex ante* assumptions of expected useful life, measure retention and technical degradation were lower than the corresponding *ex post* values produced by the third or fourth year persistence studies. By 1996 and 1997, these forecasting errors nearly cancelled each other out, producing *ex post* values for kW and kWh lifecycle savings quite close to the *ex ante* assumptions used for the programs.

For example, in 1996, the first earnings claim produced a performance basis of $298,944,000 in net benefits using *ex ante* per unit savings assumptions. The first-year load impact studies performed for the second earnings claim reduced this estimate by 9% and the third-year persistence studies raised it up

again by 15%, for an *ex post* estimate of $311,540,000 in net benefits. This represents a forecasting error of +4%, meaning that the *ex ante* estimates of kW and kWh per unit savings for that program year were 4% *lower* than the corresponding *ex post* values on an IOU-combined basis. For 1997, the first earnings claim produced a performance basis of $258,981,000 using *ex ante* per unit savings assumptions. The first-year load impact study performed for the second earnings claim reduced that estimate by 19%, and the third-year persistence study raised it up again by 14%, for an *ex post* value of $240,081,000 in net benefits. This represents a forecasting error on the order of -6.4%, meaning that the *ex ante* estimates of kW and kWh per unit savings for that program year were 6.4% *higher* than the *ex post* values produced by subsequent studies.

In sum, the available data indicates that, for the IOUs combined, the *ex post* reevaluation of lifecycle kW and kWh savings conducted for the pre-1998 programs did not produce significant adjustments to *ex ante* forecasts of net resource benefits once the actual program costs and program participation had been verified. This is not to imply that reliance on *ex ante* kW and kWh savings assumption is without some inaccuracies. Had the Commission relied on this approach (while truing up cost and participation parameters) for the 1994-1996 program years, we would have *underestimated* program net benefits and associated earnings for the IOUs combined, and slightly *overestimated* the net benefits and earnings for program year 1997.[37] However, based on the available

[37] The utility-specific numbers in Attachment 5 reveal that most of the underestimation was attributed to PG&E's *ex ante* assumptions of kW and kWh savings (relative to the results of subsequent *ex post* studies) which—given the relative size of PG&E's programs--more than offset the overestimations of kW and kWh savings estimates associated with SoCalGas and SCE's *ex ante* assumptions.

data, these inaccuracies do appear to work in both directions--without resulting in systematic overestimation of net benefits, on a statewide basis.[38]

One can see this by comparing the PEB for the first-earnings claim relative to the PEB calculated after the load impact and persistence studies were performed in the third or fourth year after program implementation. As indicated in the Attachment, the net benefits for program year 1994 calculated after adjusting cost and participation parameters (first earnings claims) are $497,017,000. After further adjusting net benefits based on load impact and persistence studies, the net benefits for that year is $600,602,000. Hence, the net benefits calculated with *ex ante* per unit kW, kWh and therm savings estimates captured only 83% of *ex post* net benefits associated with 1994 programs, for the IOUs combined. For program years 1995 and 1996 this percentage was 87% and 96%, respectively, also representing an underestimation of savings for those years. In 1997, this percentage was 108%, indicating that the *ex ante* estimates of kW and kWh savings used in that year slightly overestimated savings for that one program year.

Based on this and other information discussed at workshops and in written comments, SCE, PG&E and Aloha Systems argue that EM&V efforts to assess program performance for a particular funding cycle should focus only on verifying program costs and participation, including the number, type and

[38] The IOU-specific tables in Attachment 5 do reveal some anomalies in this regard for SoCalGas and SCE that may reflect the lack of adequate "feedback" between *ex post* results and subsequent *ex ante* program planning estimates during the pre-1998 years. As discussed in this decision, this feedback process is key, and documentation of how *ex post* study results are incorporated into subsequent program planning (and resource planning assumptions) will be part of our EM&V protocols.

quality of measure or equipment installation. In their view, *ex post* studies should not be used to reevaluate the per unit kW, kWh and therm savings levels in calculating the performance basis of any program.

In particular, PG&E contends that using *ex post* studies of per unit savings to inform future planning efforts, and not to reassess prior program year performance, will "reduce potential controversy over measurement results after evaluation has been completed, and instead focus parties' attention on robust measurement and evaluation techniques upfront."[39] Others argue that *ex post* measurement of kWh and kW savings will stifle innovation. They contend that program developers are more likely to design programs using established measures, and to avoid introducing innovative measures or entering markets where savings are less certain, when they know that per unit savings estimates will be reevaluated and adjusted after-the-fact.

We find some merit to these arguments. However, we are also persuaded by the joint comments of ORA, TURN and NRDC ("Joint Parties") that the results observed during the 1994-1997 period may have been due to the policy environment during that time. More specifically, the close alignment of *ex post* and *ex ante* numbers may have been influenced by the fact that during these years, the utilities and implementers knew they would be evaluated based on *ex post* performance, and therefore had the proper incentive to ensure quality control. As these parties point out, looking forward, it is difficult to predict whether the same alignment between *ex post* and *ex ante* values would occur if the performance basis was decoupled from *ex post* evaluation of per unit saving

[39] Comments of PG&E, July 2, 2004, p. 7.

data. Moreover, on an ongoing basis, our adopted savings targets are likely to require administrators and implementers to employ relatively new energy-savings measures and services for which solid *ex ante* information and data is not readily available or transferable.

In our view, Joint Parties present a proposal that strikes a reasonable balance of the concerns raised during the workshops and in comments, namely, how to ensure quality control, maintain the credibility of the programs, and at the same time recognize the difficulty in tying the performance basis to true-up studies that are conducted many years after program implementation. They propose the following:

1. As a general policy, ex post reevaluation of per unit kWh, kW and therm savings through load impact studies should be required to adjust the performance basis for prior program years.
2. 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.
3. Persistence studies should still be performed to inform future planning, but should not be tied to the performance basis.

We agree with Joint Parties that a general policy of adjusting the performance basis based on the results of load impact studies is necessary to ensure quality control and to maintain the credibility of the energy efficiency programs. As they point out:

> "Even with the success of energy efficiency programs in the past, some will question whether energy efficiency is a reliable resource that provides the claimed energy savings; tying compensation to *ex post* evaluations provides hard after-the-fact evidence of the savings achieved, holds the administrators

> accountable for the results, and will maintain the credibility of the programs. Relying on load impact studies for the performance basis also helps to ensure accurate forecasting. If an existing *ex ante* [Database for Energy Efficiency Resources] DEER value is known to be too high, the administrators should use the value they expect to be more accurate, since they know they will be compensated based on *ex post* evaluation, until the DEER value is corrected. This is essential since the resource planners will be relying on these savings as a resource and the forecasts should be based on the best available information."[40]

Moreover, the need to link *ex post* savings to the performance basis also arises from the fact that actual energy savings are influenced by a variety of factors over which administrators and implementers have control, including the quality of installation, proper application of a measure, proper operation, among others. Such factors may cause near-term performance to differ from assumed values obtained from the DEER. As Joint Parties explain:

> "For example, EM&V findings in California and other states indicate that *ex ante* and *ex post* energy savings can differ significantly for some measures depending on the quality of the implementation. For instance, the proper sizing and installation of heating, ventilation and air conditioning equipment, and duct testing, sealing and insulation, can significantly affect the energy savings achieved. In all of these cases, tying compensation to the verified savings will better align the administrators' and implementers' incentives with the Commission's goals."[41]

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[40] Comments of ORA, NRDC and TURN on the Administrative Law Judge's Ruling Issuing Compilation of E-Table Data for Pre-1998 Energy Efficiency Programs, February 18, 2005, p. 3.

[41] *Id.* Joint Parties also make specific recommendations regarding the *ex post* protocols applicable to Standard Performance Contract and New Construction programs. (pp. 3-4.) We believe that this level of detail is better left to further discussion during the protocol development process, and do not address them in today's decision.

At the same time, as Joint Parties recognize, it may not be necessary to "true up" the performance basis using *ex post* load impact studies for some measures and / or programs. In particular, our EM&V protocols should allow for exemptions from this requirement for those measures that have 1) *ex ante* per unit savings assumptions that are already estimated with a high degree of certainty and updated on a regular basis and 2) low external variability (e.g., in quality of installation, or operational characteristics. Referred to as "plug and play" (e.g., residential refrigerators and clothes washers), these measures can be expected to perform as estimated once installed, and therefore, it is not necessary to tie compensation to *ex post* load impact evaluations. Nonetheless, it will still be necessary to update the *ex ante* assumptions for these types of measures, on an appropriate schedule. We believe that the EM&V protocol development process described in Section 5 below is the appropriate forum for examining the specific types of measures or program types where *ex ante* assumptions will suffice.

Once the near-term load impacts of a measure or program has been evaluated, the durability of those impacts over time is important to enable resource planners to rely on energy efficiency as a resource. We have utilized persistence studies in the past to demonstrate the durability of those savings. As discussed above, during the 1994-1997 period the performance basis was tied to persistence studies over a 7-10 year measurement period. As Joint Parties point out, the completed studies have shown that the *ex ante* estimates of persistence were generally reliable. Based on that experience, we agree with Joint Parties' assessment: The additional incentive obtained by tying the performance basis to the persistence studies over time does not merit the lengthy and difficult administrative process necessary to create that incentive. Moreover, this

approach will simplify our oversight process and shorten the timeline for administrator and implementer compensation.

Persistence studies should continue to be conducted, however, to inform updates to *ex ante* assumptions and to feed into future program planning and resource planning assumptions. We will revisit this policy and revise it at a future date, as appropriate, if there is evidence that the results of *ex post* persistence studies are significantly different from the *ex ante* estimates. In that case, we will reassess the need to tie the performance basis to persistence studies for future programs.

Clearly, all of the *ex ante* assumptions used to evaluate proposed programs during each program cycle will need to be carefully scrutinized by the IOU program administrators, their advisory groups and this Commission to ensure that they are reflective of the best available information, including completed measurement studies. One of the most important next steps in the development of our future EM&V protocols will be to develop a systematic process for collecting and reporting that information, including regular updates to the DEER database, for use during the program evaluation process**.** We discuss this important step further in Section 5 below.

Finally, with regard to concerns that requiring any true-up of kWh, therm or kW savings in calculating the performance basis will stifle innovative program designs or measures, we believe that there are other ways to encourage innovation in program design without eliminating such an important component of quality control. We have taken these concerns carefully into consideration in developing the Rules and approach to EM&V that we adopt today. For example, the threshold cost-effectiveness criteria for evaluating the IOUs' portfolios will be applied on a *portfolio* level, not on the individual program level. (See Rule IV.6.)

Similarly, the performance basis for resource programs will be calculated on a portfolio-level basis. This provides the IOUs with needed flexibility to consider new designs and technologies (whose savings may be less certain) along with standard programs in assembling a portfolio that will achieve or exceed the Commission's savings goals. We have also adopted policy rules to address emerging technologies, in order to encourage innovation from promising new technologies over the longer-term. (Rules II.8 and II.9.)

In addition, our adopted administrative structure for energy efficiency encourages program innovation through the input of advisory groups and the competitive bid requirement established in D.05-01-055. These approaches to encouraging innovation are much more appropriate than entirely eliminating *ex post* true-ups of kWh, kW or therm savings, as some parties propose. On balance, we believe that our adopted rules and approach to EM&V is the best way to maintain quality control and credibility of program results, while encouraging innovation in program design and delivery.

4.2.4. Treatment of Commitments

This issue relates to whether savings and resource benefits counted towards the performance basis should reflect one of the following two methodologies: a) installations in a given year, regardless of the year in which any given installation was funded, or b) installations and funding commitments related only to the current year's funding. Prior to 1998, the performance basis was calculated utilizing method a) above, with energy savings and resource benefits calculated as they occurred. Since 1998, the performance basis has been calculated utilizing method b) above, matching the annual budgets with annual energy savings estimated at the end of the program year. Those estimates have included a combination of the savings from the measures installed during the

program year and estimated savings from funds committed to projects not yet installed.

In establishing the energy savings goals per D.04-09-060, we clarified that "only actual installations should be counted towards these goals, and not commitments.[42] Approach a) above is consistent with the manner in which we will be measuring achievement of our savings goals. Moreover, it avoids the need for an additional true-up process (between commitments and actual installations), thereby allowing for a more timely calculation of the performance basis for a given program cycle. For these reasons, we will require that the savings and resource benefits associated with installations completed in a given year, regardless of the year in which any given installation was funded, will be counted towards the performance basis for that program cycle. Nonetheless, we will require the IOUs to report and track both installations and commitments for each program year. This information will be useful for resource planning purposes and enable us to link program activities with a particular funding cycle, as needed.

The comments on the draft decision raise important transition issues that we must address as we shift from counting both actual installations and commitments, to counting only actual installations. As ORA points out, if we allow the IOUs to include savings realized in 2006 and beyond from standard performance contracting or new construction programs from commitments made before 2006—we will be "double counting" those savings. This is because the savings from these commitments have already been counted and included in

[42] D.04-09-060, *mimeo.*, p. 33.

program accomplishments in the years in which those commitments were made. We agree, and clarify today that as we transition from counting "commitments plus actuals" to counting "actuals only," such double-counting will not be allowed. Accordingly, we will not count towards the savings goals or in calculations of performance basis any "actual" installations for 2006 and beyond that are the result of commitments made prior to 2006. Today's decision also modifies the language in D.04-09-060 to clarify this transition issue.

NRDC raises a corollary issue in its comments on the draft decision: Should savings attributable to the Codes and Standards Advocacy Program implemented prior to 2006 be reported by the IOUs and counted towards the savings goals? This is a statewide program that promotes enhancements to, and enforcement of, energy efficiency standards and codes. Among other things, this program funds Codes and Standards Enhancement studies ("case study analyses") that are key input to the public rulemaking process to adopt new energy efficiency standards on an infrequent basis (every three or more years). Energy savings targets or accomplishments have not been tied to this program in the past. As discussed in Section 5 below, we adopt a new performance basis for this program that is tied to estimated savings associated with the proposed and implemented new standards.

We believe that Joint Staff, with input from technical experts and the public, should move forward in developing the EM&V protocols for estimating these savings in the coming months, so that we have a firm basis for evaluating the performance of this program and its associated energy savings. Proper valuation of the potential energy savings from activities to support codes and standards is important to ensure that these activities receive proper emphasis in the portfolio of programs, as PG&E and others point out in their comments.

However, we agree with ORA that, since the Codes and Standards Advocacy program did not have energy savings targets tied to it in the past, the most expedient way to transition its performance basis calculation is to start afresh beginning in PY 2006. This will circumvent the need to trace back past case study analyses and attributing savings to these studies, and will ensure that the case study analyses conducted to calculate the performance basis for this program are developed in accordance with adopted protocols. Moreover, as ORA points out, this approach avoids any potential inconsistency between the years in which program investments are made and considered in calculating performance basis, and the cessation of the shareholder earnings under our prior energy efficiency policy rules.

TURN recommends that the estimated savings from the Codes and Standards Advocacy Program be used to reduce or adjust the IOUs' savings targets, rather than as a credit to the targets for which the IOUs would be potentially afforded a performance incentive. In D.04-09-060, we directed Energy Division and CEC staff to "jointly prepare recommendations for adjustments to our adopted savings goals, as appropriate, based on updated savings potential studies, accomplishment data, *changes to CEC mandatory efficiency standards* and other evaluation studies and factors they deem appropriate."[43] In response to concerns raised by the IOUs that increased standards could effectively reduce that potential, we directed staff to consider the impact of increased standards as they update the savings goals.[44] However, we are not persuaded that this

[43] D.04-09-060, *mimeo.*, p. 37 (emphasis added).

[44] On the other hand, it is important to note that the potential studies we reviewed in developing the goals adopted by D.04-09-060 did not consider the savings potential

Footnote continued on next page

approach is preferable to counting savings attributable to Codes and Standards Advocacy program efforts towards achieving the goals, once acceptable EM&V protocols are established. We direct Joint Staff, in consultation with its technical experts and interested stakeholders to consider this issue and make recommendations as it further develops the performance basis and associated EM&V protocols for this program in the coming months.

The IOU administrators have expressed some concern over their ability to meet or exceed the near-term cumulative savings goals as they aggressively ramp up their program efforts if savings from pre-2006 program commitments (or in the case of Codes and Standards Advocacy program investments) cannot be counted towards the goals. We believe that this concern is misplaced, for several reasons. First, although the analysis conducted by Joint Staff to develop its recommendations for maximum achievable potential considered program accomplishments in prior years that included commitments for retrofit applications, we note that the analysis of energy savings potential only evaluated retrofit applications and a limited number of potential measures that could be included for new standards in residential dwellings. In other words, the potential against which commitments for new construction or Codes and Standards Advocacy program activities related to new construction that occurred before 2006—but that would come to fruition during 2006-2008—was not

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from potential changes in building or appliance standards. They only looked at retrofit applications and a limited number of potential measures that could be included for new standards in residential dwellings. Therefore, if Joint Staff considers the effects of new efficiency standards during the updating process, it should do so in the context of an evaluation that also takes the savings potential from new construction programs or standards into account.

included in the underlying projections of potential savings. In addition, as discussed above, we are adding solar water heating today as an eligible energy efficiency measure, which was included in the potentials study as a retrofit application.

Finally, for all the reasons discussed in D.04-09-060, we believe that the adopted savings goals are achievable "stretch goals" that the IOU administrators should be able to meet or exceed by aggressively pursuing best available practices and by exploring new innovative approaches to cost-effective energy efficiency deployment through the advisory group and competitive bid process. Nonetheless, we recognized in D.04-09-060 that there may be some differences between the near-term numerical goals and the savings levels associated with the program portfolios developed during the upcoming PY2006-PY2008 program cycle. Accordingly, if such differences exist, the IOUs should "describe how the numerical goals in later years will still be met by ramping up program efforts over time, by initiating innovative programs to improve program cost-effectiveness, or by other means."[45]

In sum, the transition approach adopted today for moving from counting commitments and actuals to counting actuals alone should not adversely affect the IOUs' ability to develop a portfolio of programs that will meet or exceed our adopted savings goals. Instead of focusing on the issue of attributing savings to prior program year activities, the IOUs should spend the coming weeks and months working closely and productively with their advisory groups and Joint

[45] D.04-09-060, *mimeo.*, p. 34 and Ordering Paragraph 4 b.

Staff to develop the program plans and EM&V protocols consistent with our adopted Rules, on a going forward basis.

5. Performance Basis for Non-Resource Energy Efficiency Programs

Workshop #3 focused specifically on the issue of performance basis for energy efficiency programs that do not directly procure energy resources, i.e., "non-resource" program. More specifically, these programs work towards the goal of increasing the efficiency of energy use through energy information, marketing and outreach, education and training and other approaches that do not directly involve or result in the installation of energy efficient equipment or measures at customer premises. As discussed at the workshop and in written comments, the performance basis must reflect the goal(s) of the particular information, marketing or outreach program. Workshop participants and Energy Division reached consensus on how to measure the performance basis for these types of programs, as follows:[46]

- Audits and Targeted Information Programs to Customers: The performance basis should measure net benefits based on program participants being: a) moved to take action through a resource program; b) taking an action themselves based on the audit / targeted education program, c) doing both of the above.
- Codes and Standards Advocacy and Industry Standards Programs: The performance basis should be based on a) predicted savings in case study analyses or American Society for Testing and Materials (ASTM) standards (for programs developing standards) that are presented to decision makers, and

[46] *Workshop Report on Future Commission Policies on Energy Efficiency Evaluation, Measurement and Verification,* November 2, 2004, pp. 4-5.

b) by how much of the recommended case study / ASTM savings are implemented in the adopted code or standard.

- Education / Training Programs: For schools, universities and other training programs, the performance basis should be based on: a) attitude, awareness and knowledge of students; b) reasonable impacts on energy savings or intention to act based on students' actions.
- Advertising and Marketing: The performance basis should be based on: a) any direct energy savings impacts attributable to the activity; b) the intention to act, if no direct impacts are possible to measure; and c) the reach of the advertising / marketing activity, the frequency of the activity and the leveraging of ancillary resources that comes from the activity.

In addition, workshop participants agreed that a separate performance basis for telephone centers and websites should not be developed. Rather, these program activities should be considered as part of the administrative costs of the programs they support. They also reached consensus that the term "market transformation" should be dropped for the purpose of establishing performance basis, since the activities and program efforts that have been included under this term are more currently covered under resource programs and other program categories.

We adopt these consensus positions, with the expectation that Energy Division with input from the public and after obtaining necessary technical expertise (see Section 5 below) will further develop each performance basis to more specifically identify outputs to be measured and evaluation methodologies.

In their comments on the draft decision, NRDC, CCSF and others argue that there should not be a clear distinction between "resource programs" and "non-resource programs," because some of the program activities discussed above may actually lead a customer to a program that directly produces verified

energy savings. For example, NRDC points out that there may be audit programs that include a direct install component. We agree that such a program has both "resource" and "non-resource" elements, and that the direct install component should be considered a resource program subject to the performance basis and EM&V protocols (including "true-up" requirements) associated with resource programs. Consequently, the verified savings associated with the resource program element should also count towards the goals. Furthermore, we place value on the non-resource program (in this example, the audit component) in the overall portfolio because of its ability to lead customers to the resource program (direct install).

However, as discussed in Section 4.2.4 above, the issue of whether to attribute the estimated energy savings associated with the Codes and Standards Advocacy program towards "resource program" achievements, or to use those estimates to adjust the IOUs savings goals, is an issue that still needs to be explored in the context of further developing the performance basis and associated EM&V protocols for this program. Moreover, as reflected in Rule IV.9, what really distinguishes "resource programs" from "non-resource programs" is our ability to reasonably estimate and verify the resource savings attributable to programs that do not necessarily focus on the timing or type of resource needs of the utility. That is why our adopted Rules do not require these programs to be evaluated based on their cost-effectiveness, but rather, recognize that "factors and performance metrics other than the TRC and PAC Tests of cost-

effectiveness" will need to be considered "when evaluating such program proposals for funding and when evaluating their results."[47] (Rule IV.9.)

Therefore, while our Rules clearly recognize that non-resource programs can add considerable value to the overall performance of the portfolio (Rule IV.6), there is—and should continue to be—a clear distinction between "resource" and "non-resource" programs even though the non-resource program may lead a customer to a resource program. The resource program is subject to cost-effectiveness evaluation during the program planning process (although passing the Dual-Test for each program is not a threshold requirement). The non-resource program is not. In addition, resource programs are subject to *ex post* EM&V true-up requirements in order to verify performance and the associated net resource savings for resource planning purposes, including the achievement of projected load impacts. At this time, we do not know what EM&V protocols will be developed to assess the performance basis of the programs listed above, including the methods for estimating and verifying associated savings where those savings can be quantified.

Therefore, we believe it is reasonable and appropriate to continue to classify the programs described in this section as "non-resource" at this time. However, we are persuaded by the comments that Joint Staff should explore whether the Codes and Standards Advocacy Program should be reclassified as a

[47] In fact, we note that in response to the urging of several parties during workshops, the ALJ specifically removed the phrase "in addition to" (the TRC test) that appeared in an earlier version of Rule IV.9 to clarify how we will evaluate programs such as emerging technologies, statewide outreach and marketing, information-only programs and other activities where the link between program efforts and savings is either very difficult to discern or where the primary focus is to structurally change the marketplace.

resource program during the PY2006-PY2008 planning cycle. Joint Staff should present recommendations on this issue in its EM&V protocol submittals (see below), after carefully considering whether this program can be held up to a level of review for cost-effectiveness and associated resource savings that provide credible and objective information on savings impacts, and whether the associated protocols can produce results that meet the needs of the ISO and resource planners.

If acceptable EM&V protocols for estimating and verifying the savings from this program can be developed and approved during the development of EM&V protocols in the coming months (see below), we will allow the IOUs to begin counting the savings from these programs towards savings goals during the PY2006-PY2008 program cycle. We direct Joint Staff to solicit input from the IOUs and other technical experts on this issue as soon as possible, so that Joint Staff can develop its recommendations and solicit public input on those recommendations during the expedited approval process described in Section 6 below.

6. Developing Specific EM&V Protocols and Integrated EM&V Cycle

Today's decision clarifies how we plan to evaluate the performance of both resource and non-resource energy efficiency programs in terms of defining the performance basis. For resource programs, we have also clarified which performance parameters will be trued-up based on *ex post* verification efforts in order to calculate the performance basis of programs implemented during the program cycle. On a prospective basis, most if not all performance parameters will be reevaluated *ex post* to inform future program development and resource planning activities. For this purpose, we need to develop specific EM&V

protocols and a cycle for EM&V that is integrated into the program planning and resource planning process. We agree with workshop participants that this goal of this effort is to:[48]

- Produce a standardized process for evaluating programs, reporting results and acting on results;
- Provide credible and objective information on program impacts and performance;
- Produce recommendations to improve program performance;
- Produce an accurate assessment of future opportunities to save energy; and
- Produce results that meet the needs of the Independent System Operator (ISO) and resource planners in order for energy efficiency to be a viable resource.

In addition, our EM&V efforts should be structured so that they can: 1) inform the program selection process, 2) provide early feedback to program implementers, 3) produce calculations of performance basis at the end of the funding period, and 4) feed back into the planning process for the next program cycle. Workshop participants agree that we need to establish such an integrated process, including a timeline for required EM&V studies and verification activities, but could not reach consensus on the specifics.

Now that we have clarified key threshold issues on EM&V for post-2005 programs, we believe that interested parties will be in a much better position to provide input on this issue. We direct Joint Staff, after obtaining technical expertise from the IOUs and other EM&V experts as necessary, to develop a draft

[48] Report on Workshop #4: The EM&V Protocol Development Process, January 21, 2005, p. 5.

proposal for EM&V plans for the PY2006-PY2008 program cycle.[49] After identifying issues for which expert assistance would be useful, Joint Staff may obtain such expertise via phone calls, in writing or in person, as Joint Staff deems appropriate. We expand the scope of this task for the upcoming program cycle to include the development of EM&V protocols for both resource and non-resource programs and an integrated EM&V cycle consistent with today's direction.

Consistent with the cooperative process we envision, we direct Joint Staff to hold public workshops to obtain and incorporate feedback before finalizing the draft proposals. Interested parties will have a further opportunity to comment on the EM&V plan and related EM&V documents once they are distributed for public comment by the ALJ.[50] Although we originally anticipated that the EM&V plans for PY2006-PY2008 would be submitted by June 1, 2005 with the proposed program plans,[51] we believe that additional time will be needed to allow for the development and approval of EM&V protocols and other EM&V-related documents based on comments on the draft decision and on Joint Staff's proposed EM&V road map.[52]

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[49] See D.05-01-055, p. 113. As discussed in that decision, Energy Division may also hire an independent consultant or consultants to assist in this and other EM&V-related responsibilities. See Ordering Paragraph 4.

[50] *Ibid.*, p. 113.

[51] *Ibid.*, Ordering Paragraph 6.

[52] In compliance with Ordering Paragraph 14 of D.05-01-055, Joint Staff circulated a draft of its proposed EM&V roadmap for comment on March 7, 2005 and revised the draft (based on the comments) for consideration by the assigned ALJ. The ALJ issued Joint Staff's draft EM&V roadmap for further comment on April 4, 2005. Comments in response to the ruling were filed on April 8, 2005 by ORA and NRDC (jointly), PG&E

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More specifically, we will first issue a decision addressing program plans and program-related funding levels, as well as competitive bid evaluation criteria in response to the June 1 applications. This will enable the IOUs to proceed with the competitive bid and submit their compliance filings while the remaining EM&V issues are being addressed. On a parallel track, Joint Staff will proceed with the development of EM&V protocols and detailed EM&V plans and budgets as described in this decision. We expect Joint Staff to submit most of their EM&V-related proposals no later than October 1, 2005, on a schedule and sequence to be determined by the EM&V roadmap. Detailed EM&V plans and associated budgets will be due a month later, by November 1, 2005, so that their development can be informed by the results of the competitive bids as well as by interim EM&V products, such as the EM&V protocols for resource and non-resource programs.

This schedule will require an expedited review process for all the interim steps leading up to the development of detailed EM&V budgets and plans, including Joint Staff's draft proposal for EM&V protocols consistent with today's direction. Accordingly, we direct that all interim EM&V-related submittals be adopted via ruling by the assigned ALJ in consultation with the Assigned Commissioner, after soliciting and considering written comments from interested parties. We will address the November 1 recommendations for final EM&V plans and associated budgets by Commission decision in the application docket

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and SCE. The ALJ's ruling and Joint Staff's roadmap proposal is posted at: www.cpuc.ca.gov / static / industry / electric / energy+efficiency / rulemaking / eeevaluation.htm.

for the PY2006-PY2008 plans. This expedited review process is necessary to ensure that final EM&V budgets and associated evaluation plans for PY2006-PY2008 can be approved by the end of the year and authorized in rates.

All Joint Staff submittals should be distributed by ALJ ruling in the appropriate program planning application docket(s). As indicated above, Joint Staff may pace the schedule and sequence for submitting specific components of the EM&V protocols and plans, per the EM&V roadmap that is established by ALJ ruling in accordance with D.05-01-055. For example, the EM&V protocols and EM&V plans for resource programs may be submitted earlier than those for non-resource programs. As appropriate, Joint Staff should update the EM&V roadmap to reflect today's decision regarding schedule and content of the EM&V filings. The assigned ALJ may provide additional clarification and direction on EM&V issues, or make modifications to the roadmap during the program planning cycle, as needed.

We recognize that it is difficult, if not impossible, for EM&V plans for the PY2006-PY2008 program offerings to be developed in a budget "vacuum." It is clear from the comments that we need to provide more guidance regarding the level of funding available and appropriate for EM&V-related activities, in order to facilitate meaningful debate over EM&V plans and protocols. According to the Framework Study, estimates of where evaluation budgets should be set have generally ranged from about ten percent to a low of about two percent of the program budget. For California IOUs, EM&V expenditures have ranged from a

high of approximately 14% over the 1993-1996 time period to an average of approximately 4% in recent years.[53]

Looking forward, we are doubtful that the lower range of these estimates would provide sufficient resources for EM&V-related activities. In particular, we note that program evaluations during recent years have relied on "deemed" savings estimates (*ex ante* estimated per unit savings) or adjustments to deemed savings, a practice that requires less EM&V expenditures than those requiring true-ups based on *ex post* load impact studies. Moreover, the Framework Study reports that many program administrators have indicated that they lacked sufficient resources to conduct process evaluations or to obtain baseline information for their programs.[54] Finally, the Framework Study discussion of how to establish evaluation budgets does not consider the broader range of EM&V activities that will be needed to meet our EM&V goals, such as the updating of savings potential studies and the development of information to hand off to resource planners in California.

Based on the above considerations and comments on the draft decision, we believe that an EM&V budget of approximately 8% of program funding is a reasonable guideline to use in developing EM&V plans for the upcoming program cycle. This level of funding would cover the range of EM&V-related activities required to meet our EM&V goals, including the costs of verifying program participation and program expenditures, conducting load impact

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[53] Source: Data compiled from the Annual Energy Efficiency Reports of the IOUs filed with the Commission each May.

[54] Framework Study, pp. 70-71.

studies, persistence studies and process evaluations and updating the energy savings potential studies per D.04-09-060, among others. We emphasize that the 8% level is to be used as a general guideline for the EM&V planning process, and represents an average annual percentage over the 3-year funding cycle. We note that Joint Staff's EM&V roadmap proposal to use placeholder percentages of 9%, 8% and 7% for program years 2006, 2007 and 2008 is consistent with this guideline. Before adopting a specific EM&V funding level for PY2006-PY2008, we will need to consider the costs of proposed EM&V activities within the context of available personnel and contracting resources, the cost of each program as well as the expected value produced by each program, among other considerations.

The EM&V plans and associated budget for the portfolio of programs offered in PY2006-PY2008 will reflect decisions concerning the type and frequency of EM&V studies conducted for each program and the major study parameters utilized for each study (e.g., sample design, monitoring duration and schedule, approaches undertaken to evaluate and minimize bias, etc.). As part of the planning process for this and future program cycles, Joint Staff will need to develop EM&V protocols that include the following information:

a) A protocol table for classifying each proposed program, based on characteristics such as program size, market segment, whether it involves new construction or retrofit applications, the performance basis and other considerations, in order to establish the type of studies that will be conducted under the EM&V plan. The pre-1998 EM&V protocols and the Framework Study offer guidance that can be used to decide what type of evaluations to

pursue based on the classification of programs.[55] For example, for a program offering appliance rebates, the protocol table might indicate that gross load impacts would be assessed using engineering methods, net-to-gross impacts would be survey-based, and measurement retention and technical degradation assessments would be based on sub-sample site visits for program participants and non-participants.

b) A cross-walk table between the type of study or studies required for each program classification and the specific outputs that will be generated for the calculation of the performance basis—either on a prospective basis for future programs or for true-up purposes for prior year programs. For example, the outputs of an engineering analysis to evaluate gross load impacts would include the load shape and level of savings per unit. The outputs of a participation verification study would include the types and numbers of measures and equipment installed.

c) A protocol that describes the frequency for each type of study, by program classification. The combination of this protocol and b) above should provide a schedule for how frequently specific performance parameters (e.g., first year energy savings, program participation, expected useful measure lives, net-to-gross ratios, technical degradation factors, etc.) will be updated. As indicated in Section 4 above, some of these parameters will need to be updated to true-up the performance basis as well as to inform future *ex ante* estimates. We provide further guidance below concerning the frequency of studies for the development of this protocol.

d) Quality control protocols that provide directions on how to gather and analyze information for major study parameters, including acceptable methods for estimating load impacts, sample design and billing data requirements (as applicable), acceptable data collection methods, acceptable confidence levels, approaches for dealing with uncertainty, recommended

[55] See for example, Table C.4 in Appendix C of the Framework Study, and Tables 9 and 10 and the C-Tables in Appendix C of the pre-1998 protocols.

techniques for assessing and minimizing potential bias, among others. In the pre-1998 protocols, these types of directions appeared in the specific protocol tables associated with each study type (e.g., Impact Measurement C-Tables). The Framework Study provides a more expansive discussion of the major study parameters, in both text and tabular (or flow chart) form.[56] The EM&V team should review the pre-1998 protocols and the Framework Study and create from applicable sections of either or both a set of quality control guidelines to be used in conducting the various types of EM&V studies (e.g., impact, persistence and process) included in the EM&V plans.

e) A schematic and accompanying description that illustrates the "integrated EM&V cycle", that is, how the required studies will inform the program planning and resource planning process. This document should indicate when studies will be completed, how they will be submitted / made available for public review, and describe how the resulting updated information will feed into the next energy efficiency program planning cycle and / or resource planning cycles. In particular, it should present the schedule and process for updating the DEER database on a regular basis, using the results of *ex post* measurement studies.

Because the energy savings from the Low Income Energy Efficiency (LIEE) programs will also be counted towards the Commission-adopted savings goals, per D.04-09-060, we will need to more closely coordinate the EM&V protocols associated with LIEE programs (e.g., load impact studies) with those developed in this proceeding. The IOUs will be conducting LIEE load impact studies for programs implemented during PY2005.

In the coming months, Joint Staff should ensure that the study parameters for this effort are being carefully coordinated with those being developed for

[56] See, for example, the Sampling Roadmap section of Chapter 13, beginning at page 332 and "Steps in Developing the Sample Design" within that section of the Framework Study.

non-low income energy efficiency programs in this proceeding. After receiving technical input from the IOUs and other EM&V experts as well as public input, Joint Staff should also develop an updated performance basis and associated EM&V protocols for post-2005 LIEE programs. These protocols (e.g., frequency of load impact studies, quality control protocols for study parameters, verification methods for customer participation, etc.) should be developed to be as consistent as possible with those being developed in this proceeding. However, we will defer consideration of these LIEE-related EM&V issues until the 2006 Annual Earnings Assessment Proceeding (AEAP). With the May 1, 2006 AEAP filings, Joint Staff should submit its proposal for the LIEE performance basis and associated EM&V protocols to the assigned ALJ for consideration in the AEAP proceeding.

To further facilitate the development of EM&V plans for PY2006-PY2008 energy efficiency programs, including the development of EM&V protocols and an integrated EM&V cycle, we provide guidance regarding the frequency and priority of various EM&V activities in the following discussion. Overall, we agree with SCE's observation that "the measurement and evaluation efforts should be scheduled as often as necessary, but not necessarily timed consistently among all programs or attributes."[57]

For program costs and the number, types and quality of measures installed, we suggest that these performance parameters be verified on a fixed schedule immediately after the program year is over. The EM&V plans submitted for PY2006-PY2008 will need to specify the method for verification of

[57] Pre-Workshop Comments of SCE for Workshop #2, August 3, 2004, p.6.

these parameters (and associated costs). As discussed above, program costs and program participation have in the past accounted for the major true-up adjustments to *ex ante* projections of net resource benefits. We therefore expect the EM&V plans to allocate a level of funding and effort to the verification of these performance parameters that reflects their importance.

With regard to *ex post* first-year load impact studies to measure the peak (kW) and energy (kWh and therm) savings associated with resource programs, we suggest that they be conducted at least once during each three-year program funding cycle. As discussed above, regular *ex post* measurement of load impacts will be needed to update savings forecasts on a prospective basis and, as a general policy, to true-up the performance basis of resource programs. Exceptions to this minimum frequency requirement 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.

We also suggest that persistence studies be conducted at least once every 3-5 years for the top ten measures ranked by net resource value, or the number of measures that constitutes the first 50% of the estimated portfolio resource value, whichever number of measures is less. Tables 8 and 9 of the pre-1998 protocols may provide Joint Staff with additional guidance on the issue of what measures should be included in persistence studies, and their frequency. Consistent with the workshop consensus, incremental measure costs should be evaluated and updated on the order of once every 3-5 years.

We also suggest that all programs (resource and non-resource) be subject to some form of *ex post* evaluation--either load impact evaluation or process evaluation--at least once every two years. Programs with new measures should

include both process and impact evaluation within two years of their initiation. In addition, the underlying program theory for new or substantially revised programs should be reviewed during their first year or as part of their process evaluation.

The EM&V plans should also ensure that resource planners and the ISO receive a complete and accurate assessment of the estimated portfolio-level savings impacts at least once every three years. This will require an evaluation of the potential interactions among savings from programs in the same sector or market, i.e., the sum of the parts may not equal the whole. Such an assessment should reflect verified program participation levels (type and number of measures installed), verified portfolio costs and ex post evaluation of load impacts.[58]

In addition, the EM&V plans should include a schedule and budget for updating studies to estimate the remaining potential to save energy, including the impact of recently adopted building and appliance standards, and to evaluate how these estimates relate to current energy savings goals. This analysis should be completed by June 1, 2007 to ensure that the Commission has sufficient time to readjust savings goals for the 2009-2011 programs.

Finally, separate and distinct evaluation plans should be developed for emerging technology programs. Joint Staff should work with emerging technology program managers to identify key metrics of success for the programs proposed with the June 1, 2005 program plan applications, and then

[58] This requirement is in addition to the annual summary to be provided by the IOU administrators per Rule X.3.

develop an evaluation plan that will provide the Commission with information on their progress, on an annual basis.

We recognize that the schedule for developing and submitting all of these EM&V proposals is ambitious. However, an expedited schedule is necessary in order to have EM&V plans and associated protocols in place for the roll-out of PY2006-PY2008 programs. We expect Joint Staff to fully utilize the expertise of the Energy Division's EM&V consultant(s), IOU technical experts and other expertise as necessary to assist with the development of these proposals. We also call on all the stakeholders to work collaboratively in the months ahead. As we stated in D.05-01-055: "Working together, all stakeholders will benefit from the result of these efforts: The full recognition of energy efficiency as a viable resource that can be relied upon to reduce the demand for energy in California."[59]

7. Comments on Draft Decision

The draft decision of ALJ Gottstein in this matter was mailed to the parties in accordance with Pub. Util. Code § 311(g)(1) and Rule 77.7 of the Commission's Rules of Practice and Procedure. Comments were filed on April 6, 2005 by California Climate Action Registry, CCSF, NRDC, PG&E, Proctor Engineering, Rita Norton and Associates, SCE, jointly by SDG&E and SoCalGas, TURN and WEM. Reply comments were filed on April 11, 2005 by CCSF, NRDC, ORA, PG&E, SCE, SDG&E / SoCalGas and TURN.

We have carefully reviewed the comments on the draft decision, and make changes and clarifications throughout the decision in response to many of them.

[59] D.05-01-055, p. 13.

In addition, we clarify our expectations regarding the process for developing the required EM&V submittals. In D.05-01-055, we discussed a process whereby Energy Division and CEC staff (Joint Staff) working with IOUs and an "ad hoc technical advisory group" established for this purpose would develop a "joint proposal" for EM&V issues, prior to submitting the draft proposal for public comment at workshops.[60] The process we describe today makes it clear that we expect Joint Staff to utilize the technical expertise of IOUs and other experts in developing draft proposals, but places ultimate responsibility on staff for such joint proposals. Our prior decision stated that staff could obtain expert assistance in completing some of its tasks. Today's decision clarifies that, after identifying issues for which expert assistance would be useful, Joint Staff may obtain such expertise via phone calls, in writing or in person, as Joint Staff deems appropriate. Finally, we clarify that Joint Staff should submit their EM&V proposals to the assigned ALJ to be issued via ruling for comment, rather than file them with the Commission's Docket Office, and adopt an expedited review process for their consideration.

8. Assignment of Proceeding

Susan P. Kennedy is the Assigned Commissioner and Meg Gottstein is the assigned ALJ in this phase of the proceeding.

Findings of Fact

1. The current Energy Efficiency Policy Manual needs to be updated to reflect the administrative structure adopted in D.05-01-055 and the energy efficiency goals articulated in the Energy Action Plan and in recent Commission decisions.

[60] *Ibid.* p. 113.

2. The policy rules contained in the Energy Efficiency Policy Manual (Rules) need to reflect the Commission's overriding goal for energy efficiency, namely, to pursue all cost-effective energy efficiency opportunities over both the short- and long-term. They also recognize that energy efficiency is critical to achieving reductions in environmental impacts, including greenhouse gas emissions, associated with the State's energy consumption.

3. The D.04-09-060 requirement that the IOUs meet or exceed our adopted savings goals, which represent aggressive "stretch goals" over the short- and long-term, reduces the potential for creating lost energy efficiency opportunities.

4. Focusing energy efficiency activities on programs that serve as alternatives to more costly supply-side resource options ("resource programs") is the most equitable way to distribute program benefits. By keeping energy resource procurement costs as low as possible through the deployment of cost-effective resource programs, over time all customers will share in the resource savings from energy efficiency.

5. Adding language to the Rules that would specify target market sectors to reach with program efforts, create minimum funding level requirements for specific programs or define program outreach methods would dilute efforts to attain the overriding goal for energy efficiency and unduly handicap the program planning process established in D.05-01-055. The appropriate mix of programs across market sectors and geography, as well as appropriate program design, will reveal itself during the program planning process and during program implementation as the IOUs focus on pursuing the most cost-effective programs that will meet or exceed the Commission's short- and long-term savings goals, while minimizing lost opportunities in the process.

6. As discussed in this decision, this is not the procedural forum for addressing issues related to the Commission's valuation of avoided costs. Nor do we have a sufficient record based on the comments for modifying the conversion factors (and associated MW goals) adopted in D.04-09-060.

7. Given concerns over near-term reliability issues, as we continue to refine our interim methodology for avoided costs and update our savings goals the Rules should explicitly encourage aggressive programs that target measures with most of their energy savings during peak time periods.

8. The Rules recognize that non-resource programs are also needed to support the savings goals, such as statewide outreach and marketing and support for codes and standards. To continue and build upon the success of the existing statewide marketing and outreach program, the IOUs should allocate a sufficient portion of portfolio funding to this effort.

9. The Rules recognize that encouraging the accurate reporting of emissions in California will support the Governor's and State's goals to reduce greenhouse gas emissions. To this end, the IOUs should explore with their advisory groups ways in which to co-brand with the California Climate Action Registry. This might include marketing and outreach efforts that provide information about the Registry to IOU customers and encourage larger commercial and industrial customers to participate in the Registry reporting protocols, for example.

10. The effect of solar water heating is indistinguishable from other efficiency measures that reduce natural gas or electricity consumption at the end user site (such as water heater wraps, pipe insulation, etc.). In contrast, photovoltaic and solar-thermal electric technologies generate electricity and therefore should be considered renewable technologies.

11. The potential studies that we relied upon in establishing the energy savings goals for energy efficiency included solar hot water heating as an energy efficiency measure.

12. A portfolio level approach to evaluating cost-effectiveness and performance basis is necessary to encourage innovation and allow for some risk taking on pilot programs and/or new measures in the portfolio. However, the results of cost-effectiveness tests should be considered when evaluating specific resource program proposals.

13. Exceptions to the portfolio-level approach for the Dual-Test threshold requirement are required for solar water heating and fuel substitution programs to ensure that (1) energy efficiency funds are not being authorized to fund non-cost effective solar water heating installations (e.g., by bundling a non-cost effective solar water heating installation with highly cost-effective energy efficiency measures) and (2) fuel substitution programs create resource value.

14. Considering the results of both the TRC and PAC tests of cost-effectiveness ("dual test") when evaluating all resource program proposals ensures that program administrators and program implementers do not spend more on financial incentives or rebates to participating customers than is necessary to achieve TRC benefits.

15. EM&V expenditures represent a true cost of acquiring energy efficiency resources. Therefore, these costs should not be ignored when evaluating the cost-effectiveness of energy efficiency on either a prospective basis, or after the programs have been implemented. However, as we have also reasoned in prior Commission decisions, these costs should be considered on a portfolio-level basis, rather than program-by-program for both practical and policy reasons. Allocating EM&V costs at a total portfolio level (as in the past) will allow for

economies of scale when designing EM&V by allowing for aggregation of studies.

16. All of the program administrators' costs related to energy efficiency programs, irrespective of their funding source (e.g., via base rates), should be included in the calculation of the TRC and PAC tests of cost-effectiveness on a prospective basis, in the reporting of estimated costs and cost-effectiveness for future program proposals and in evaluating the performance basis of programs after implementation. To do otherwise would inappropriately shield those costs from review during program planning and implementation. However, for the reasons discussed in this decision, EM&V costs should be allocated at the total portfolio level, rather than program by program.

17. It is reasonable to continue to use DEER as the primary source for energy savings and cost-effectiveness input assumptions for program planning, subject to an updating process and schedule that will be developed in the EM&V protocols.

18. A performance basis for energy efficiency resource programs that is based on net resource benefits is consistent with the expectation that ratepayer investments in energy efficiency should seek to maximize net resource benefits (resource savings minus costs). In contrast, adopting a performance basis metric based on kWh, therm or kW savings levels ignores the level of net benefits produced by the programs. This approach creates a strong incentive for program administrators and implementers to produce energy savings or demand reductions at any cost—even if the costs were higher than the supply-side alternatives these programs are designed to defer or displace. Moreover, adopting a performance basis that does not consider the avoided costs of energy

savings or demand reductions fails to recognize that when and where those savings occur can produce very different levels of ratepayer benefits.

19. As discussed in this decision, relying solely on net resource benefits to assess the performance basis of resource programs may not necessarily encourage performance that is consistent with the kWh, therm and kW savings goals we have established for energy efficiency, and in turn, with the demand reductions that are incorporated into the IOUs' long-term procurement plans.

20. ORA's proposal to weight the ratios of actual versus targeted TRC cost-effectiveness results, peak kW savings and kWh savings is overly complicated, produces significant redundancy among the metrics included in the performance basis, and does not clearly promote performance that is consistent with the Commission's goals.

21. Staff proposes a performance basis that reflects net resource benefits, coupled with a minimum threshold based on Commission-adopted savings goals. This approach will encourage investments in cost-effective energy efficiency that are also designed to produce savings consistent with resource planning assumptions.

22. The specifics of how best to establish the minimum threshold should be addressed in a later phase of this proceeding, when we have an opportunity to evaluate all aspects of a risk/reward mechanism.

23. Weighting the TRC test of cost-effectiveness by two-thirds and the PAC test by one-third in the calculation of performance basis is preferred to an equal weighting of these two tests. As discussed in this decision, putting more weight on the TRC results reflects our policy that the TRC should be the primary test of cost-effectiveness for ranking and funding resource programs. At the same time,

including the PAC test in the performance basis appropriately acknowledges the dual-cost issue unique to energy efficiency investments.

24. Non-price components of avoided costs (e.g., environmental adders) are real costs to ratepayers and should be reflected in the avoided costs used to evaluate energy efficiency programs and their associated performance basis.

25. The Societal-variant of the TRC test treats certain cost components as transfers, e.g., tax payments and interest payments. These costs should be treated as explicit resource costs, consistent with the way they are treated in evaluating supply-side options.

26. The risk factors and environmental benefits that NRDC refers to in justifying a lower societal discount rate for evaluating energy efficiency are already reflected in the avoided cost adders we use to value program benefits. Moreover, utilizing a lower societal discount rate for energy efficiency makes it difficult to compare energy efficiency with alternative investments that use a market rate to present value future costs and benefits. In using a lower societal discount rate and treating certain costs as transfers, the Societal variant of the TRC test does not adequately reflect our view of energy efficiency in today's policy environment, namely, as a viable resource to more expensive supply-side resources.

27. The speculative nature of any attempts to quantify spillover effects significantly reduces their applicability as an analytical tool at this time. Moreover, discounting the accounting of free-ridership through "spillover," as PG&E proposes, would make it particularly difficult to attribute indirect program benefits to education and information programs, without double-counting those benefits.

28. Historically, the largest true-up adjustment to the ex ante performance basis for resource programs has occurred when actual program costs and verified program participation were substituted for the ex ante forecasted values.

29. Historical data for the pre-1998 programs also indicate that, for the IOUs combined, adjustments made to the performance basis based on the results of the first-year load impact studies and the persistence studies generally cancelled each other out over time. However, these observed results may have been due to the policy environment during that time. Specifically, the close alignment of ex post and ex ante per unit savings may have been influenced by the fact that during these years, the program administrators and implementers knew they would be evaluated based on ex post performance, and therefore had the proper incentive to ensure quality control.

30. Looking forward, it is difficult to predict whether the same alignment between ex post and ex ante would occur if the performance basis was completely decoupled from ex post evaluation of per unit saving data.

31. On an ongoing basis, our adopted savings targets are likely to require program administrators and implementers to employ relatively new energy-efficiency savings measures and services for which solid ex ante information and data is not readily available or transferable. Adjusting the performance basis on the results of load impact studies is a necessary general policy to ensure quality control and to maintain the credibility of the energy efficiency programs.

32. The joint proposal of TURN, ORA and NRDC (Joint Parties) for performance basis true-up strikes a reasonable balance of our concerns: How to ensure quality control, maintain the credibility of the programs, and at the same time recognize the difficulty in tying the performance basis to true-up studies that are conducted many years after program implementation.

33. As recognized by the Joint Parties, it may not be necessary to true-up the performance basis using ex post load impact studies for some measures and/or programs, and the protocols should allow for appropriate exceptions.

34. Completed studies have shown that ex ante estimates of persistence studies have generally been reliable. The additional incentive obtained by tying the performance basis to the persistence studies over time does not appear to merit the lengthy and difficult administrative process necessary to create that incentive. Moreover, calculating the performance basis utilizing ex ante assumptions of savings persistence over time will simplify our oversight process and shorten the timeline for administrator and implementer compensation.

35. As discussed in this decision, the approaches we have adopted in our administrative structure decision, our adopted Rules and EM&V framework is the best way to maintain quality control and credibility of program results, while encouraging innovation in program design and delivery. These approaches to encouraging innovation are much more appropriate than entirely eliminating *ex post* true-ups, as some parties propose.

36. Counting only the installations in a given year in calculating the performance basis, regardless of the year in which any given installation was funded, is consistent with the approach we adopted in D.04-09-060 for the way the IOUs should account for progress towards adopted savings goals. Moreover, this approach avoids the need for an additional true-up process (between commitments and actual installations), thereby allowing for a more timely calculation of performance basis for a given program cycle. However, there are important transition issues to address in moving from counting "commitments and actuals" to "actuals only."

37. Allowing IOUs to include savings realized in 2006 and beyond from standard performance contracting or new construction programs from commitments made before 2006 would "double count" the savings accomplishments from those programs.

38. Since the Codes and Standards Advocacy program did not have energy savings targets tied to it in the past, the most expedient way to transition its performance basis calculation is to start afresh beginning in PY 2006. This will circumvent the need to trace back past case study analyses and attributing savings to these studies, and will ensure that the case study analyses conducted for this program are developed in accordance with adopted protocols. Moreover, this approach avoids any potential inconsistency between the year in which program investments are made and are considered in calculating performance basis, and the cessation of the shareholder earnings under the prior energy efficiency policy rules.

39. On a prospective basis (for program year 2006 and beyond), to ensure that Codes and Standards Advocacy program activities receive proper emphasis in the portfolio of programs, it is important to further develop the performance basis and associated EM&V protocols for estimating the savings associated with this program. Joint Staff, with input from technical experts and the public, should move forward on this effort in the coming months, as it develops the EM&V submittals described in Section 6 if this decision.

40. For the reasons discussed in this decision, the transition approach adopted today for moving from counting commitments and actuals to counting actuals alone should not adversely affect the IOUs' ability to develop a portfolio of programs that will meet or exceed our adopted savings goals.

41. Reporting and tracking both installations and commitments for each program year will provide useful information for resource planning purposes and enable us to link program activities with a particular funding cycle, as needed.

42. The consensus workshop positions regarding the performance basis for non-resource programs provides a reasonable basis for further development, including the identification of outputs to be measured and evaluation methodologies. For the reasons discussed in this decision, we continue to distinguish between "resource" and "non-resource" programs at this time. However, because some programs may contain both "resource" and "non-resource" program elements (e.g., audit programs that include a direct install component), it may be reasonable to consider the direct install component as a resource program subject to the performance basis and EM&V protocols (including true-up requirements) associated with resource programs, and count the verified savings towards our savings goals.

43. In addition, it is reasonable to consider further whether the Codes and Standards Advocacy program should be reclassified as a resource program, as discussed in this decision. If acceptable EM&V protocols for estimating and verifying the savings from this program can be developed and approved during the development of EM&V protocols in the coming months, the IOUs should be allowed to begin counting the savings from these programs towards savings goals during the PY2006-PY2008 program cycle.

44. The development of specific EM&V protocols and a cycle for EM&V that is integrated into the program planning and resource planning process should:

a) Produce a standardized process for evaluating programs, reporting results and acting on results;

b) Provide credible and objective information on program impacts and performances;

c) Produce recommendations to improve program performance;

d) Produce an accurate assessment of future opportunities to save energy; and

e) Produce results that meet the needs of the ISO and resource planners in order for energy efficiency to be a viable resource.

45. In addition, EM&V efforts should be structured so that they can: 1) inform the program selection process, 2) provide early feedback to program implementers, 3) produce calculations of performance basis at the end of the funding period, and 4) feed back into the planning process for the program cycle.

46. As discussed in this decision, the schedule anticipated in D.05-01-055 for the filing of EM&V plans and associated budgets should be extended to allow for the development of EM&V protocols and other EM&V-related submittals.

47. It is difficult, if not impossible, to develop EM&V plans for the PY2006-PY2008 program offerings and associated protocols in a budget "vacuum."

48. Estimates of where evaluation budgets should be set have generally ranged from about ten percent to about two percent of the program budget, according to the Framework Study. For the California IOUs, EM&V expenditures have ranged from a high of approximately 14% over the 1993-1996 timeframe to a low of about two percent of the program budget. This range does not including the broader range of EM&V activities that will be needed in the future to meet our EM&V goals (e.g., updates to potential studies). Moreover, program evaluations during recent years have relied on deemed savings (*ex ante*) estimates or adjustments to deemed savings, a practice that requires less EM&V expenditures than those required true-ups based on *ex post* load impact studies.

49. A planning figure for EM&V of 8% of total program funding is a reasonable range to adopt for the PY2006-PY2008 program cycle, based on the above considerations and comments on the draft decision.

50. Various EM&V protocols need to be developed in conjunction with the development of EM&V plans for the PY2006-PY2008 program cycle, as described in this decision.

51. EM&V protocols associated with early replacement programs should recognize that there is still capital value to that equipment for the remaining useful life—even if the customer can save energy by replacing it sooner.

52. Because the energy savings from the LIEE programs will also be counted towards the Commission-adopted goals, per D.04-09-060, the EM&V protocols associated with LIEE programs will need to be more closely coordinated with the EM&V protocols being developed in this proceeding.

53. Further guidance regarding the frequency and priority of various EM&V activities, as provided in this decision, should serve to facilitate the development of EM&V plans and protocols for PY2006-PY2008 energy efficiency programs.

Conclusions of Law

1. Today's adopted updates to the current Energy Efficiency Policy Manual, as reflected in Attachment 3, are reasonable and should be adopted.

2. The performance basis for resource and non-resource programs described herein is reasonable and should be adopted.

3. To transition effectively from counting savings from "commitments and actuals" to "actuals only" towards the adopted savings goals and in calculating the performance basis, savings resulting from program commitments or (in the case of Codes and Standards Advocacy program investments) made prior to 2006 should not be counted towards the savings goals established for 2006 and

beyond. The language in D.04-09-060 should be clarified to address this transition.

4. For the reasons discussed in this decision, solar water heaters should be eligible measures for energy efficiency funding in 2006 and beyond, under the cost-effectiveness conditions described in the Rules.

5. Consistent with today's direction, Joint Staff with input from IOU technical experts and other experts as necessary, and with public inputs, should develop EM&V plans and associated EM&V protocols, including an integrated EM&V cycle.

6. The expedited review process for EM&V submittals described in this decision is necessary and reasonable to ensure that final EM&V budgets and associated evaluation plans for PY2006-PY2008 can be adopted in a timely manner for the roll-out of programs during the program cycle.

7. In order to proceed expeditiously with the planning process for the PY2006-PY2008 program cycle, this order should be effective today.

INTERIM ORDER

IT IS ORDERED that:

1. The Energy Efficiency Policy Manual presented in Attachment 3, including the policy rules (Rules), terms and definitions contained therein, is adopted. This document may be updated in the future as provided for in the Rules.

2. Pacific Gas and Electric Company, San Diego Gas & Electric Company, Southern California Edison Company and Southern California Gas Company, collectively referred to as the "investor-owned utilities" or "IOUs", shall develop their energy efficiency program portfolios for 2006 and beyond in compliance with the Rules contained in the Energy Efficiency Policy Manual (Attachment 3).

3. As discussed in this decision, Energy Division shall clarify the energy efficiency reporting requirements to ensure that all costs associated with energy efficiency are reported, including those IOU costs recovered in base rates. All energy efficiency-related costs shall be reported in estimates of program or portfolio cost-effectiveness on a prospective basis during the program planning cycle, as well as in calculations of the performance basis after program implementation. Energy Division shall also ensure that both installations and commitments are reported for each program year for energy efficiency activities beginning in 2006.

4. Energy Division shall independently review the cost-effectiveness calculations presented by the IOUs in their program year (PY) 2006-PY2008 program applications and compliance filings. Energy Division may solicit the services of a consultant (or consultants) and/or staff or services from other agencies through interagency agreements to assist in this effort, the cost of which shall be paid for out of energy efficiency program funds. Upon completion, this review shall be made available to the program advisory groups and distributed to the service list for comment by ruling of the assigned Administrative Law Judge (ALJ), in the applicable program planning docket.

5. Programs that are designed to defer or avoid more costly supply-side alternatives are referred to as "resource programs." These include programs that offer financial incentives (e.g., rebates) to customers to encourage them to install energy efficient measures or equipment. The performance basis for resource programs shall reflect the net resource benefits (energy savings minus costs) of the programs, utilizing a weighted average of the Total Resource Cost (TRC) and the Program Administrator's Cost (PAC) tests of cost-effectiveness. As discussed in this decision, the TRC net benefits shall be weighted two-thirds and the PAC

net benefits shall be weighted one-thirds in that calculation. The value of the energy savings for both the TRC and the PAC tests shall be calculated using the avoided costs that are adopted in R.04-04-025, including the non-price components (e.g., environmental adders). The TRC and PAC net benefit calculations shall be conducted utilizing the IOUs' weighted cost of capital, as discussed in this decision. The savings and resource benefits counted towards the performance basis shall reflect installations in a given year, regardless of the year in which any given installation was funded. However, for the reasons discussed in this decision, savings resulting from commitments made prior to 2006 will not count towards the savings goals or in the calculation of performance basis for 2006 and beyond.

6. The performance basis for resource programs shall include a minimum performance threshold that is tied to Commission-adopted kilowatt, kilowatt-hour and therm savings goals. The specifics of how best to establish that threshold is deferred until a later phase of this proceeding, when there is an opportunity to evaluate all aspects of an energy efficiency risk/reward mechanism.

7. The performance of the IOU program administrators after program implementation shall be based on portfolio performance. Calculating the performance basis at the program level will be appropriate for measuring program implementer performance.

8. As discussed in this decision, the performance basis for resource programs implemented in 2006 and beyond shall be subject to the following:

   a. 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.

b. A true-up of *ex ante* program costs assumptions with actual expenditure levels.

c. As a general policy, *ex post* reevaluation 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.

d. 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.

9. The performance basis for non-resource programs will be measured based on the workshop consensus positions presented in this decision. These programs include statewide marketing and outreach, support for codes and standards, training and education, among others. As described in this decision, Energy Division and California Energy Commission staff ("Joint Staff"), after obtaining appropriate technical expertise from IOU technical staff and other experts, as necessary, shall further develop each performance basis, so that measurable outputs and evaluation methodologies can be specified in EM&V protocols.

10. As described in this decision, Joint Staff shall develop a joint proposal for EM&V plans and associated budgets for the PY2006-PY2008 program cycle, after obtaining appropriate technical expertise from IOU technical staff and other experts, as necessary. The scope of this task is expanded to include the development of EM&V protocols for both resource and non-resource programs and an integrated EM&V cycle consistent with today's direction. In developing the EM&V plans and associated protocols, Joint Staff should assume an EM&V budget of approximately 8% of total program funding for the PY2006-PY2008 program cycle for planning purposes. Joint Staff shall discuss their draft EM&V

submittals in public workshops to obtain and incorporate feedback before finalizing them.

11. As discussed in this decision, the EM&V protocol submittals for the PY2006-PY2008 program cycle shall include the following information:

a. A protocol table for classifying each proposed program, based on characteristics such as program size, market segment, whether it involves new construction or retrofit applications, the performance basis and other considerations, in order to establish the type of studies that will be conducted under the EM&V plan.

b. A cross-walk table between the type of study or studies required for each program classification and the specific outputs that will be generated for the calculation of the performance basis—either on a prospective basis for future programs or for true-up purposes for prior year programs.

c. A protocol that describes the frequency for each type of study, by program classification. The combination of this protocol and b) above should provide a schedule for how frequently specific performance parameters (e.g., first year energy savings, program participation, expected useful measure lives, net-to-gross ratios, technical degradation factors, etc.) will be updated.

d. Quality control protocols that provide directions for how to gather and analyze information for major study parameters, including acceptable methods for estimating load impacts, sample design and billing data requirements (as applicable), acceptable data collection methods, acceptable confidence levels, approaches for dealing with uncertainty, recommended techniques for assessing and minimizing potential bias, among others.

e. A schematic and accompanying description that illustrates the "integrated EM&V cycle", that is, how the required studies will inform the program planning and resource planning process. This document should indicate when studies will be completed, how they will be submitted / made available for public review, and describe how the resulting updated information will feed into the next energy efficiency program planning cycle and / or resource planning cycles. In particular, it should present the schedule and process for updating the DEER

database on a regular basis, using the results of *ex post* measurement studies.

12. Joint Staff shall proceed with the development of EM&V protocols and detailed EM&V plans and budgets as described in this decision. Joint Staff shall submit detailed EM&V plans and associated budgets by November 1, 2005 for Commission consideration. We adopt the expedited review process described in today's decision for the interim steps leading up to the development of detailed EM&V budgets and plans, which includes the review and approval of EM&V protocols.

13. In developing its recommendations for the EM&V plans and associated protocols, Joint Staff shall take into consideration the guidance provided in today's decision regarding the frequency and priority of various EM&V activities.

14. As discussed in this decision, the Rules do not prohibit early replacement programs, but appropriate EM&V protocols still need to be developed to specify how to quantify savings from them. Joint Staff shall present its recommendations on EM&V issues related to early replacement programs, including the issue of lost capital value discussed in this decision, as part of the EM&V protocol submittals required by this decision. In addition, as part of those protocol submittals, Joint Staff shall present recommendations on whether the Codes and Standards Advocacy Program should be classified as a "resource program" after carefully considering (1) whether this program can be held up to a level of review for cost-effectiveness and associated resource savings that provide credible and objective information on savings impacts, and (2) whether the associated protocols can produce results that meet the needs of the ISO and resource planners. Joint Staff shall solicit input from the IOUs and other technical experts on this issue as soon as possible, so that Joint Staff can develop

its recommendations and obtain public input on those recommendations during the expedited approval process described in today's decision.

15. As discussed in this decision, Joint Staff, after obtaining appropriate technical expertise from IOUs and other experts as necessary, shall also coordinate the study parameters for the 2005 load impact study being performed for the Low Income Energy Efficiency (LIEE) Program with the EM&V efforts underway in this proceeding. In the May 2006 filings for the 2006 Annual Earnings Assessment Proceeding (AEAP), the Joint Staff shall submit to the assigned Administrative Law Judge (ALJ) a joint proposal for the LIEE performance basis and associated EM&V protocols, after obtaining public input on their joint proposal. The ALJ shall issue the joint proposal for comment via ruling to the service lists in the applicable AEAP docket, in this rulemaking (or successor proceeding) and in the low-income assistance rulemaking, R.04-01-006.

16. All EM&V-related submittals by Joint Staff required by this decision shall be served as an attachment to an ALJ ruling on the application dockets for the PY2006-PY2008 program plans.

17. In order to address the transition issues discussed in this decision, the language of the first full paragraph on page 33 of Decision (D.) 04-09-060 shall be modified as follows (deletions are noted in ~~strikeout~~; additions in *italics*):

> "In response to comments on the draft decision, we clarify that only actual installations should be counted towards these goals, and not commitments~~.~~, *with the exception discussed below*. That means, for example, that the savings reported for ~~PY2006~~ *PY2008* will reflect measures actually installed during calendar year ~~2006~~ *2008* (January through December), regardless of whether the commitments to install those measures were made in ~~PY2006~~ *PY2008* or in prior program year(s). *However,if we allow the IOUs to include savings realized in 2006 and beyond from program commitments made before 2006, we would be "double counting" those savings. This is because the savings from these commitments have already been counted and included in program accomplishments in the years in which those commitments were made.*

Therefore, in order to avoid double-counting during the transition from counting commitments plus actual installations to counting only actual installations, we will not count towards the savings goals any actual installations for 2006 and beyond that are the result of commitments made prior to 2006."

18. The Assigned Commissioner or ALJ may, for good cause, modify the due dates established by this decision.

19. This proceeding remains open to address ongoing issues related to energy efficiency policies and programs.

This order is effective today.

Dated April 21, 2005, at San Francisco, California.

MICHAEL R. PEEVEY
President
GEOFFREY F. BROWN
SUSAN P. KENNEDY
Commissioners

Comr. Grueneich recused herself from this agenda and was not part of the quorum in its consideration.

Gottstein Attachment 1

Gottstein Attachment 2

Gottstein Attachment 3

Gottstein Attachment 4

Gottstein Attachment 5

Gottstein Appendix A to Attachment 3

Gottstein Appendix B to Attachment 3

ATTACHMENT 1

LIST OF ATTACHMENTS AND ABBREVIATIONS

ATTACHMENT 1

LIST OF ACRONYMS AND ABBREVIATIONS

AEAP	Annual Earnings Assessment Proceeding
ALJ	Administrative Law Judge
ASTM	American Society for Testing and Materials
CCSF	City and County of San Francisco
CEC	California Energy Commission
CSBN	Center for Small Business and Environment / San Francisco Small Business Network and Small Business California
D.	Decision
DEER	Database for Energy Efficiency Resources
Draft Rules	Draft of proposed rules
EM&V	Evaluation, Measurement and Verification
EM&V Team	technical advisory group
GWh	Gigawatt-hours
IOUs	investor-owned utilities
ISO	Independent System Operator
Joint Parties	ORA, TURN and NRDC
kW	Kilowatt
kWh	kilowatt-hours
LIEE	Low Income Energy Efficiency
MW	Megawatt
NRDC	Natural Resources Defense Council
ORA	Office of Ratepayer Advocates
PAC	Program Administrator Cost
PEB	performance earnings basis
PGC	public goods charge
PG&E	Pacific Gas and Electric Company
PHC	prehearing conference
program cycle	Three-year program planning and funding cycle for energy efficiency
Protocols	"Protocols and Procedures for the Verification of Costs, Benefits, and Shareholder Earnings from Demand-Side Management Programs"
Pub. Util. Code	Public Utilities Code
PY	program year
Rules	policy rules contained in the Energy Efficiency Policy Manual
R.	Rulemaking
SCE	Southern California Edison Company
SDG&E	San Diego Gas & Electric Company
SoCalGas	Southern California Gas Company
TRC	Total Resource Cost
TURN	The Utility Reform Network
UC	Utility Cost
WEM	Women's Energy Matters

(END OF ATTACHMENT 1)

ATTACHMENT 2

WORKSHOP PARTICIPANTS AND WRITTEN COMMENTS

		Workshop #1				Workshop #2			Workshop #1a		Workshop #3		Workshop #4						
	ORGANIZATION	Performance Basis - Resource Programs				Planning/Implem. Cycle			Cont. WS #1		Performance Basis Non-Res. Prgms.		EM&V Protocol Development				Policy Rules Workshop		
		Pre-WS	Workshop	Rpt. Cmts.	Rpt. Reply	Pre-WS	Workshop	Post-WS	Pre-WS	Workshop	Pre-WS	Workshop	Pre-WS	Workshop	Post-WS	WS Rpt Cmts	Pre-WS	Workshop	Workshop
		3/26/2004	4/2/2004	7/2/2004	7/16/2004	8/3/2004	8/11/2004	8/26/2004	9/8/2004	9/13/2004	9/8/2004	9/14/2004	11/8/2004	11/10/2004	12/9/2004	2/4/2005	2/1/2205	2/15/2005	2/16/2005
1	ABAG																	x	
2	ACEEE																		
3	ADM Associates																	x	x
4	Architectural Energy Corporation (AEC)		x									x		x					
5	Alliance to Save Energy (ASE)											x							
6	Aloha System, Inc.	x	x	x		x			x	x				x					
7	Bevilacqua-Knight Inc. (BKI)		x															x	
8	California Society for Healthcare Engineering/California Heathcare Association (CSHE/CHA)					x	x												
9	Center for Small Business and the Environment, Small Business Advocates, and Efficiency Data & Development (CSBE/SBA/ED&D)		x			x	x										x		x
10	California Climate Action Registry																x	x	
11	California Energy Commission (CEC)		x				x			x				x				x	
12	City of Davis Yolo Energy Efficiency Project																	x	
13	City of San Jose													x					
14	City and County of San Francisco																x	x	x
15	Community Energy Services																	x	x
16	Davis Energy Group																	x	
17	D&R International		x				x							x				x	x
18	Ecology Action																	x	x
19	Ecos Consulting		x																
20	Efficiency Partnership										x	x		x			x	x	x
21	Efficiency Valuation Corporation																	x	
22	Equipoise Consulting Inc.											x		x					
23	Energy Solutions																	x	
24	Freeman, Sullivan & Co.						x			x		x		x				x	
25	Geopraxis																	x	
26	ICF Consulting		x															x	x
27	Insualtion Contractors Association																	x	x
28	Intergy Corporation																	x	
29	Kema-Xenergy													x					
30	Latino Issues Forum																	x	
31	League of Women Voters		x																
32	Los Angeles County																x	x	x
33	Megdal & Associates		x							x		x		x					
34	Nexant, Inc.									x				x				x	x
35	Natural Resource Defense Council (NRDC)	x	x	x	x		x	x		x		x					x	x	x
36	Navigant Consulting																	x	x
37	ORA		x		x	x	x			x		x	x	x	x		x	x	x
38	PG&E	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x
39	Proctor Energy Group																x	x	x
40	Quantec						x			x				x					
41	Quantum Consulting, Inc.		x				x			x		x							
42	RHA, Inc.																	x	
43	Ridge & Associates													x					
44	Rita Norton and Associates, LLC													x					
45	RLW Analytics, Inc.		x				x							x					
46	Robert Mowris and Associates	x	x															x	x
47	Runyon, Salzman & Einhorn																	x	x
48	Sacramento Municipal Utility District (SMUD)		x				x					x		x				x	x
49	SBW Consulting, Inc.									x		x						x	x
50	SCE	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x
51	SDGE	x	x	x	x	x	x			x	x	x	x	x	x		x	x	x
52	SDREO																	x	x
53	SCG	x	x	x	x	x	x			x	x	x	x	x	x		x	x	x
54	SESCO						x												
55	Sisson & Associates																	x	
56	Skumatz Economics Research Associates (SERA)											x							
57	Staples Marketing																	x	x
58	TecMarket Works		x				x							x					
59	TURN			x	x		x			x		x						x	x
60	UCONS, LLC						x											x	x
61	Univision																	x	x
62	Women's Energy Matters (WEM)	x	x	x	x	x	x			x			x	x		x	x	x	x

ATTACHMENT 3

ENERGY EFFICIENCY POLICY MANUAL, VERSION 3

ATTACHMENT 3
Page 1

ENERGY EFFICIENCY POLICY MANUAL FOR POST-2005 PROGRAMS

I. Introduction

This document presents the California Public Utilities Commission's (Commission) policy rules and related reference documents for the development and evaluation of energy efficiency programs funded by ratepayers in California. Referred to as the Energy Efficiency Policy Manual, Version 3, this document shall apply to all energy efficiency activities commencing in program year (PY) 2006 and beyond. The policy rules, terms and definitions contained herein apply to energy efficiency activities funded through the following mechanisms:

- The electric public goods charge (PGC), as authorized by Public Utilities (PU) Code Sections 381 and 399[1]
- The gas PGC, as authorized by PU Code Sections 890-900.
- Procurement rates, as authorized by the Commission.

The rules in this manual do **not** currently apply to:

- Low-income energy efficiency programs (LIEE) funded by the electric or gas PGC
- California Alternative Rates for Energy (CARE) for low-income customers funded out of electric or gas PGC[2]
- Interruptible rate or load management programs[3]

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[1] Consistent with the provisions of AB117 (Chapter 838, Chaptered September 24, 2002), Section 381.1 was added to Public Utilities Code permitting community choice aggregators (CCAs) to apply to administer cost-effective energy efficiency and conservation programs. The Commission adopted certain procedures in Decision (D.) 03-07-034 (dated July 10, 2003) to implement portions of AB 117 affecting the allocation of energy efficiency program funds.

[2] A separate low-income rulemaking was initiated on August 23, 2001 (R.01-08-027).

[3] Interruptible and load management programs are primarily being addressed in Rulemaking (R.) 00-10-002.

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- Self-generation and demand-responsiveness programs developed in response to AB970 (PU Code Section 399.15(b)).[4]

This document supercedes all previous versions of the Energy Efficiency Policy Manual. Sections II-XI below articulate the Commission's policy rules ("Rules") governing energy efficiency activities, commencing in 2006.

The term "Program Administrators" refers to the following investor-owned utilities (IOUs): Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), San Diego Gas & Electric Company (SDG&E) and Southern California Gas Company (SoCalGas).

II. Energy Efficiency Policy Objectives and Program Funding Guidelines

1. Commission and state energy policy, as expressed in the Energy Action Plan and reaffirmed in Decision (D.) 04-12-048, make energy efficiency the utilities' highest priority procurement resource. In other words, cost-effective energy efficiency should be first in the "loading order" of resources used by the utilities to meet their customers' energy service needs. The Governor's and the state's policies also seek to reduce the environmental impact (including the greenhouse gas emissions) associated with the state's energy consumption, to protect the public's health and safety. Energy efficiency is a critical part of the state's strategy to achieve these goals.

2. The Commission's overriding goal guiding its energy efficiency efforts is to pursue all cost-effective energy efficiency opportunities over both the short- and long-term. By D.04-09-060, the Commission translated this policy into specific annual and cumulative numerical goals for electricity and natural gas savings by utility service territory. These goals shall be updated periodically by the Commission as provided for in that decision. The Commission-adopted energy savings goals are expressed in terms of annual and cumulative gigawatt hours, million-therms and peak megawatt load reductions. Program Administrators should develop their energy efficiency program

[4] These programs were adopted in D.01-03-073, in R.98-07-037.

portfolios so that they will meet or exceed these annual and cumulative savings goals, both over the short- and long-term.[5]

3. In order to promote the resource procurement policies articulated in the Energy Action Plan and by this Commission, energy efficiency activities funded by ratepayers should focus on programs that serve as alternatives to more costly supply-side resource options ("resource programs"), Focusing energy efficiency efforts in this way is the most equitable way to distribute program benefits: By keeping energy resource procurement costs as low as possible through the deployment of cost-effective portfolio of resource programs, over time *all* customers will share in the resource savings from energy efficiency**.**

4. "Lost opportunities" are those energy efficiency options which offer long-lived, cost-effective savings and which, if not exploited promptly or simultaneously with other low cost energy efficiency measures or in tandem with other load-reduction technologies or distributed generation technologies being installed at the site (e.g., solar heating or photovoltaics), are lost irretrievably or rendered much more costly to achieve. "Cream skimming" results in the pursuit of only the lowest cost energy efficiency measures, leaving behind other cost-effective opportunities. Cream skimming becomes a problem when lost opportunities are created in the process.

5. Program Administrators should manage their portfolio of programs to meet or exceed the short- and long-term savings goals established by the Commission by pursuing the most cost-effective energy efficiency resource programs first, while minimizing lost opportunities. In addition, the Program Administrators should demonstrate in their program planning applications for PY2006-PY2008 how their proposed portfolio will aggressively increase overall capacity utilization and lower peak loads through the deployment of low load factor / high critical peak saving measures. The aggressive annual and cumulative savings goals established by the Commission will serve to discourage cream- skimming program designs or implementation approaches that create lost opportunities. Nonetheless, Program

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[5] While the energy savings achieved by LIEE programs will count towards the Commission's savings goals, per D.04-09-050, the Commission considers factors other than cost-effectiveness in determining LIEE program design and funding levels.

Administrators should actively develop strategies to minimize lost opportunities, and should describe those strategies in the applications they submit for each program cycle.

6. Compliance with Rule II.5 will generally dictate the appropriate balance for portfolio funding of resource programs across market sectors (e.g., residential, industrial, commercial) and geography, as well as the most appropriate program designs. Program Administrators should also include a selection of statewide marketing and outreach programs, upstream market transformation programs, information and education programs, support for codes and standards and other activities in their proposed portfolios that support the Commission's short-term and long-term energy savings goals. Program administrators shall allocate a sufficient portion of portfolio funding to statewide marketing and outreach to continue and build upon the success of the existing program. Statewide measurement and outreach programs should convey a consistent statewide message to energy consumers in all sectors.

7. To further support the Governor's and State's goals to reduce greenhouse gas emissions, Program Administrators should explore with their advisory groups ways in which to co-brand with the California Climate Action Registry that will encourage the accurate reporting of emissions in California. This might include, for example, marketing and outreach efforts that provide information about the Registry to IOU customers and encourage larger commercial and industrial customers to participate in the Registry reporting protocols. In their program plan applications, Program Administrators shall describe the ways in which such co-branding will be supported through their proposed programs.

8. The deployment of new and improved energy efficiency products and applications can help sustain or increase current savings yields from program dollars, and serves to create a new generation of technologies available to tap the cost-effective potential of energy efficiency in ways we cannot predict today. In order to provide higher levels of bridging between available upstream innovations and the marketplace, annual funding for emerging technologies programs should increase. Program Administrators should work with the California Energy Commission (CEC) and other appropriate stakeholders to include appropriate levels of funding to demonstrate and commercialize emerging technologies funded through the California Public Interest Energy Research (PIER) program and other sources that otherwise would not receive funding for pre-commercialization demonstration. In their program planning applications, the Program Administrators shall jointly propose emerging technologies

programs and increases to current funding levels for these programs. The main purpose of these programs should be to increase the probability that promising technologies will be commercialized within 6 years of program funding and thereby increase the chance of obtaining additional energy savings from these technologies in the long run. Program strategies should focus on reducing both the performance uncertainties associated with new products and applications and the institutional barriers to introducing them into the market.

9. Per D.04-09-060, Program Administrators with input from the public and advisory groups will develop for Commission consideration their portfolios of energy efficiency programs utilizing selection criteria that are consistent with these Rules. Program Administrators will manage a portfolio of programs implemented by IOUs and non-IOUs that are selected and evaluated based on their ability to best meet the policy objectives articulated in these Rules.

10. Pursuant to PU Code sections 381, 381.1, 399 and 890-900, PGC funds must be spent in the service territory from which the funds were collected. Additionally, gas PGC collections must fund natural gas energy efficiency programs and electric PGC collections must fund electric energy efficiency programs. However, nothing in these Rules is intended to prohibit or limit the ability of the Commission to direct the IOUs to jointly fund with PGC or other collections (e.g., via procurement rates) selected measurement studies, statewide marketing and outreach programs, or other energy-efficiency activities that reach across service territory boundaries.

III. Common Terms and Definitions

1. Common terms and definitions will facilitate the review, selection and evaluation of energy efficiency activities. In particular, program definitions should be designed to facilitate to the extent possible: (1) the identification of energy efficiency activities by end-use savings potential, (2) the evaluation, measurement and verification (EM&V) of those activities based on Commission-adopted EM&V protocols, and (3) the coordination of program development and evaluation with resource planning and procurement needs. To this end, Program Administrators and program implementers should use the definitions included in Appendix B to these Rules when characterizing any proposed program activity. The burden is on them to justify any departure from those terms and definitions.

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IV. Cost-Effectiveness

1. The cost-effectiveness indicators referred to in these rules are described in the California Standard Practices Manual (SPM): Economic Analysis of Demand-Side Management Programs. Program Administrators and Implementers should perform cost-effectiveness analyses consistent with the indicators and methodologies included in the SPM, unless otherwise indicated.[6]

2. This Commission relies on the Total Resource Cost Test (TRC) as the primary indicator of energy efficiency program cost effectiveness, consistent with our view that ratepayer-funded energy efficiency should focus on programs that serve as resource alternatives to supply-side options. The TRC test measures the net resource benefits from the perspective of all ratepayers by combining the net benefits of the program to participants and non-participants. The benefits are the avoided costs of the supply-side resources avoided or deferred. The TRC costs encompass the cost of the measures / equipment installed and the costs incurred by the program administrator.[7] The TRC should be calculated utilizing a discount rate that reflects the utilities' weighted average cost of capital, as adopted by the Commission. [8]

3. The Program Administrator Cost (PAC) test of cost-effectiveness should also be considered in evaluating program and portfolio cost-effectiveness. Under the PAC test, the program benefits are the same as the TRC test, but costs are defined differently to include the costs incurred by the program administrator (including financial incentives or rebates paid to participants), but not the costs incurred by the

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[6] See Appendix A of this manual for information on how to obtain a copy of the SPM.

[7] The TRC test looks at the "incremental" measure cost (not the full cost) when an energy-efficient appliance or measure promoted through the program is installed in lieu of the standard (less efficient) appliance / measure that would have been installed, without the financial incentive or outreach program.

[8] Instead of utilizing different values for each IOU, a reasonable "average" of the Commission-adopted values may be used for programs across all service territories. Energy Division should post that value with the most recent version of the SPM.

participating customer. Like the TRC test, the PAC test should be calculated utilizing a discount rate that reflects the utilities' weighted cost of capital.

4. Applying both the TRC and PAC tests of cost-effectiveness is called the "Dual-Test". In almost all instances, an energy efficiency program that passes the TRC test will also pass the PAC test. However, if deployment of the program requires rebates or financial incentives to participants that exceed the measure cost, then the program may pass the TRC test, but fail the PAC test. Considering the results of both tests when evaluating program proposals ensures that program administrators and implementers do not spend more on financial incentives or rebates to participating customers than is necessary to achieve TRC net benefits.

5. Both the TRC and PAC tests should be computed utilizing the avoided cost methodologies and input assumptions, including non-price factors (e.g., for avoiding greenhouse gas and non-greenhouse gas pollutants) that are developed for the evaluation of energy efficiency programs in our avoided cost rulemaking, R.04-04-025..

6. A prospective showing of cost-effectiveness using the Dual-Test for the entire portfolio of ratepayer-funded energy efficiency activities and programs (i.e., individual programs, plus all costs not assignable to individual programs, such as overhead, planning, evaluation, measurement verification and administrator compensation and performance, if applicable) is a threshold condition for eligibility for ratepayer funds. This threshold requirement applies to each of the following: (1) the entire statewide portfolio of programs and (2) the service-territory wide program portfolios offered by each Program Administrator, excluding emerging technologies programs. Program administrators must demonstrate that this threshold requirement is met on a prospective basis in their program funding applications to the Commission. If a prospective showing of cost-effectiveness for the entire statewide portfolio *including emerging technologies programs* does not also pass the Dual-Test, Program Administrators shall describe the benefits associated with these programs that are not reflected in the TRC or PAC tests, and describe how these programs are expected to produce benefits in excess of costs for California ratepayers over the long-term. Program Administrators must also demonstrate that the proposed level of electric and natural gas energy

efficiency program activities are expected to meet or exceed the Commission-adopted electric and natural gas savings goals, by service territory.[9]

7. As described in these Rules, fuel-substitution programs must also pass the Dual-Test to be considered for inclusion in the portfolio and eligible for funding. In addition, as a condition for the inclusion of solar water heating within the definition of energy efficiency measures, solar water heating installations must be cost-effective on a stand-alone basis, i.e., pass the Dual-Test of cost-effectiveness to be eligible for funding. Other programs are not strictly required to pass the Dual test on a program level basis to be considered for funding, but their cost-effectiveness must be carefully considered in order to design an overall portfolio that passes the Dual-Test, per Rule IV.6. Accordingly, except where otherwise indicated in these Rules, Program Administrators must present estimates of TRC and PAC net benefits for each program on a prospective basis in their program funding applications, along with any other information that may be requested by the Commission, Assigned Commissioner, Administrative Law Judge or Energy Division.[10] However, evaluation, measurement and verification costs should not be allocated to individual programs in the calculation of TRC and PAC net benefits. Rather, all costs associated with evaluation, measurement and verification should be allocated at the total portfolio level, rather than program by program.

8. To support comparisons of all resources in the utilities' procurement portfolio, the program administrators are required to also provide levelized unit cost estimates at the portfolio, end-use and measure level consistent with the methods described in the SPM. This information should be submitted with the program administrators' compliance filings on the competitive bid results, during each program cycle

9. The usefulness of the TRC test as a primary indicator of cost-effectiveness is limited for certain programs which do not necessarily focus on the timing or type of resource needs of the utility, such as programs designed to demonstrate or commercialize promising emerging energy efficiency technologies or structurally change the marketplace. For statewide marketing and outreach programs and information-only programs, the link between programs and savings is also difficult to

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[9] Per D.04-09-060, savings from LIEE programs will also count towards these goals.

[10] See, for example, Ordering Paragraph 4, D.04-09-060.

discern. Therefore, the Commission and program administrators will need to consider factors and performance metrics other than the TRC and PAC Tests of cost-effectiveness when evaluating such program proposals for funding and when evaluating their results.

10. Fuel substitution programs may offer resource value and environmental benefits. Fuel-substitution programs should reduce the need for supply without degrading environmental quality. Fuel-substitution programs, whether applied to retrofit or new construction applications, must pass the following three-prong test to be considered further for funding:

1. The program must not increase source-BTU consumption. Proponents of fuel substitution programs should calculate the source-BTU impacts using the current CEC-established heat rate.

2. The program must have TRC and PAC benefit-cost ratio of 1.0 or greater. The TRC and PAC tests used for this purpose should be developed in a manner consistent with these Rules.

3. The program must not adversely impact the environment. To quantify this impact, respondents should compare the environmental costs with and without the program using the most recently adopted values for residual emissions in the avoided cost rulemaking, R.04-04-025. The burden of proof lies with the sponsoring party to show that the material environmental impacts have been adequately considered in the analysis.

For purposes of applying these tests, fuel substitution proponents must compare the technologies offered by their program with the most efficient same-fuel substitute technologies available to prospective participants that would have TRC and PAC benefit-cost ratio of 1.0 or greater. The burden of proof falls on the party sponsoring the analysis to show that the baseline comparison adheres to this requirement. Fuel substitution programs with a predominantly load building or load retention character are not eligible for funding, and the proponent of a fuel-substitution program carries the burden of proof to demonstrate that the program focuses on energy efficiency and creates net resource value.

11. To the extent possible, the assumptions that are used to estimate load impacts (e.g., kWh, kW and therm savings per unit, program net-to-gross ratios, incremental measure costs and useful lives) in the calculation of the TRC and PAC tests shall be

taken from the Database for energy Efficiency Resources (DEER). [11] If the required load impacts for cost-effectiveness test inputs are not available in DEER, documentation supporting the inclusion of new information from alternate sources must be provided together with the program proposal. The evaluation, measurement and verification protocols for post-2005 programs will include a schedule and process for updating DEER on a regular basis. (See Rule V.2 below)

V. Evaluation, Measurement and Verification (EM&V)

1. The development of energy efficiency programs that deliver reliable energy savings for California's ratepayers depends on well-designed methods of program evaluation, measurement and verification (EM&V). Rigorous EM&V practices are required to gauge the performance of Program Administrators and Implementers, verify energy savings, improve the design and success of future energy efficiency programs and enhance the reliability of forecasted savings for resource planning purposes.

2. The performance basis and related EM&&V protocols for energy efficiency portfolios and programs for post-2005 energy efficiency activities will be developed and updated in the EM&V phase of this rulemaking, or its successor proceeding, consistent with these Rules.

3. D.05-01-055 adopts a two-track approach to EM&V administration: Energy Division will be responsible for program and portfolio impacts-related EM&V; Program administrators and program implementers shall manage program design, evaluation and market assessment, with Energy Division taking the lead role in the selection of contractors. As also directed in D.05-01-055, Energy Division will provide for public input in the development of EM&V plans, budget, and allocation of funding. In addition, in carrying out its EM&V responsibilities, Energy Division will utilize ad hoc review committees of technical experts, as appropriate.

VI. Competitive Bidding and Partnership Programs

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[11] See Appendix A of this manual for information on how to access DEER.

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1. Competitive solicitations can help to identify innovative approaches or technologies for meeting savings goals with improved performance that might not otherwise be identified during the program planning process. However, not all program activities lend themselves to a competitive solicitation. It would be counterproductive to require open bids in instances where, for example, partnerships between IOUs and local governments ("local government partnership programs") can take advantage of the unique strengths that both partners bring to the table, or a combination of partnerships and bilateral contracting arrangements with private or public entities can deliver effective statewide initiatives, such as a statewide public awareness campaign or an upstream lighting program.

2. Competition in energy efficiency procurement should focus on soliciting good, new program ideas to achieve or exceed the Commission's savings goals, rather than allocating a specific percentage of program funding to particular implementers. Decisions on whether non-IOUs should be program implementers responsible for designing and delivering the program (rather than working to implement IOU-designed programs) should be made based on an evaluation of whether the program designs and delivery mechanisms proposed by non-IOUs are superior to those currently being implemented or planned for the future in achieving overall portfolio savings goals.

3. As directed in D.05-01-055, for each program planning cycle, the Program Administrators shall propose a portfolio of programs (with input from the Program Advisory Groups as described in that decision) that reflects the continuation of successful IOU and non-IOU implemented programs and new program initiatives designed to meet or exceed the Commission's savings goals with cost-effective energy efficiency. As part of that process, the Program Administrators will identify a minimum of 20% of funding for the entire portfolio of programs that will be put out to competitive bid to third-parties for the purpose of soliciting innovative ideas and proposals for improved portfolio performance. The portions to put out to bid could encompass programs currently designed and delivered by a combination of IOU and non-IOU program implementers. Any current program or group of programs (IOU or non-IOU designed and implemented) that can be improved upon in this way may be subject to open bids to replace, augment or otherwise enhance current efforts. However, open bids should not be required in instances where current or potential future partnerships between the Program Administrators and local governments can take advantage of the unique strengths that both partners bring to the table to deliver cost-effective energy efficiency services, or where combination of partnerships and

bilateral contracting arrangements with private or public entities can deliver effective statewide initiatives that enhance portfolio performance. Such activities should be funded out of the 80% (maximum) core portfolio that is not put out to competitive bid.

4. As directed in D.05-01-055, the proposed portfolio of programs, portions to put out to bid and the bid evaluation criteria will be filed by the Program Administrators in their program plan applications for each funding cycle, and subject to Commission approval. Upon receiving Commission approval of the applications, the Program Administrators will complete the process of selecting programs and program implementers to design and deliver the programs in the next program cycle. During this process, the Program Administrators will develop and issue RFPs using criteria approved by the Commission and select a set of bids. The Peer Review Groups (including Energy Division's independent consultant(s)) will observe the Program Administrators' bid selection process to ensure that the criteria are applied properly. Before finalizing their selections, the Program Administrators will discuss the proposed results of their bid review process with the Peer Review Groups (and Energy Division's independent consultants)**.** After incorporating feedback, the Program Administrators will make public all winning bids and submit compliance filings, as directed in D.05-01-055.

5. Future partnership programs need to be developed in a manner that places the Program Administrator and local government (or private) partner on more equal footing, in terms of involvement in program design and planning, information sharing and program implementation. We recognize that some program partners may prefer or be best suited to functioning as a subcontractor to the Program Administrator and performing a supporting role for the program. However, this should not be the only option available for partnership programs. Other partnership arrangements, e.g., where the local government partner is fully involved in program planning and implementation, may take better advantage of the relative strengths of each partner. These arrangements must, in any event, be considered in light of other applicable Commission decisions, including the implementation of community choice aggregation , and should in no way diminish or dilute the responsibility and accountability of Program Administrators to meet the Commission-adopted savings goals.

6. Standard contract language should improve the effectiveness of future partnership programs. The standard language should establish the rights and responsibilities of the partners with sufficient flexibility to enable each partner to make improvements to program performance, as circumstances warrant. The standard

language should also address information sharing, intellectual property ownership, reimbursement turn-around, dispute resolution, and other issues. Energy Division and Legal Division should work with the Program Administrators, interested local governments and other parties to develop a standard contract for future partnership programs, and submit that language with the PY2006-PY2008 program plans.

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VII. Advisory Groups

1. The Program Administrators should put together the advisory groups and implement the program design and selection process consistent with D.05-01-055 and in the spirit of the collaborative approach they discuss in their filings. These advisory groups should serve to: (1) promote transparency in the Program Administrator's decision-making process; (2) provide a forum to obtain valuable technical expertise from stakeholders and non-market participants; (3) encourage collaboration among stakeholders and (4) create an additional venue for public participation. The advisory groups will provide advice and feedback to the IOUs and provide annual information to the Commission, but will not have any independent decision-making or contracting authority.

2. As discussed in D.05-01-055, members of the PAGs should be drawn from the energy efficiency expertise of both market and non-market participants across the full spectrum of program areas and strategies. One purpose of the PAGs is to provide guidance to the IOUs regarding region-specific customer and program needs, and provide a forum for input and collaboration with the local interests and stakeholders served by the programs. However, the PAGs must not focus exclusively on region-specific needs. The IOUs and their PAGs should also address statewide programs and consistency issues, bringing in national expertise as appropriate to consider these issues. For the purpose, the IOUs should form a subgroup of their PAG members sho will closely collaborate and coordinate on statewide marketing and outreach, support for building codes and stadndards, education and training and other activities that secure both short- and long-term energy savings and peak demand reductions by providing a consistent and recognizable program presence throughout the state. In addition, the PAGs and IOUs should collaborate on statewide program designs and implementation strategies that increasingly integrate energy efficiency with demand response and distributed generation offerings to end-users.

3. The IOUs and PAGs should ensure that statewide residential and nonresidential offerings take advantage of "best available practices" and avoid customer confusion by being as uniform and consistent as possible. While we recognize that differences in climate zones and other parameters may warrant some variations in program offerings to customers, these variations should be the exception and not the rule. If the need emerges to focus on a particular market segment, the IOUs and PAGs may also establish a separate working group of industry experts and stakeholders to address that need.

4. Energy Division and ORA staff will be *ex officio* members of each PAG and peer review subgroup described below, and CEC staff is invited to participate as *ex officio* members as well. The IOUs will selsect additional PAG members, but participation will be voluntary and there will be no formal voting rules or designation of voting or non-voting members. Within each PAG, the IOU will also identify and select a subgroup on non-financially interested members with extensive energy efficiency expertise that are willing to serve as peer reviewers for the energy efficiency program evaluation and selection process, referred to as "Peer Review Groups" (PRGs.)

5. As described in D.05-01-055), members of each PRG will be expected to: (1) participate in the ongoing PAG process, (2) review the IOUs' submittals to the Commission and assess the IOUs' overall portfolio plans, their plans for bidding out pieces of the portfolio per the minimum bidding requirement and (3) review the bid evaluation utilized by the IOUs and their application of that criteria in selecting third-party programs. In addition, the three PRGs are expected to meet and assess the statewide portfolio in terms of its ability to meet or exceed short and long-term savings goals in compliance with these Rules.

6. The PAG meetings should be open to the public, and the IOUs should establish a clearinghouse website for noticing these meetings and posting documents to be discussed by the PAG at the meetings. In addition, the IOUs are expected to conduct public workshops, at least twice a year that are designed to solicit broad public input from non-PAG members concerning program design and implementation.

VIII. Performance-Based Risk and Reward Incentive Mechanism

1. In accordance with Public Utilities Code Section 739.10, the Commission has established balancing accounts for each utility that remove significant regulatory disincentives for utility investments in energy efficiency and other demand-side management programs. With these balancing accounts, a large majority of the utilities' fixed-cost revenue requirements are no longer tied to the forecasted level of commodity electric and natural gas sales.

2. To further ensure that the utilities procure a portfolio of energy resource that meets the Commission's goals of affordable, reliable and environmentally sensitive resource procurement, the Commission is in the process of establishing an overall procurement incentive framework in Rulemaking (R.).04-04-003. Work on key aspects

of an energy efficiency incentive mechanism is proceeding concurrently (e.g., definition of performance basis and development of measurement protocols), since these aspects need to be developed for program and portfolio evaluation irrespective of the overall procurement incentive structure. However, as stated in the Order Instituting Rulemaking in R.04-04-003, the Commission intends to adopt an overall framework for procurement incentives before making final determinations on resource-specific incentive mechanisms.

IX. Affiliate and Disclosure Rules

1. To avoid anti-competitive behavior and cross-subsidies between IOUs and their affiliates, all transactions between the IOU administrator and any implementer that is an affiliate of PG&E, SCE, SDG&E or SoCalGas are banned, per D.05-01-055.

2. The Program Administrators will not provide preferential treatment to any provider of an energy efficiency service that uses energy efficiency program funds.

3. Bidders for EM&V contracts, including program design evaluation and market assessment studies, shall provide full disclosure of any potential conflicts of interest, including all current non-energy efficiency related contracts with Program Administrators and program implementers.

X. Reporting Requirements

1. The Program Administrators shall present information in their program planning applications in compliance with Ordering Paragraph 13 of D.04-12-048, and in compliance with any further direction by this Commission, the Assigned Commissioner or Administrative Law Judge regarding the content or format of these filings. Energy Division may develop reporting requirements through workshops or other means to ensure that the types of data and the format of the information presented in the Program Administrator filings and reports is as consistent as possible.

2. The Program Administrators shall file reports on portfolio and program activities on a regular basis during the program cycle using the standardized reporting formats, definitions, timelines and narratives established by the Energy Division, as updated from time to time. The design and oversight of program-specific, portfolio-level and financial reporting requirements for energy efficiency activities will remain the responsibility of the Energy Division, as discussed in D.05-01-055. Energy Division

shall design the reporting requirements in consultation with the Assigned Commissioner and Administrative Law Judge.

3. In addition to other reports that may be required, the Program Administrators shall publish a summary of the achievements of the energy efficiency programs on an annual basis. This report will be available to the public on the web and will contain at least the following information for the entire portfolio as well as each utility's portfolio: (1) energy savings (annual and lifecycle kWh and therms), peak demand savings, levelized costs, cost per kW saved, total cost to billpayers, total savings to billpayers, net benefits to billpayers and environmental benefits (tons of CO2 and other pollutants avoided). Following each program cycle, a summary of the *ex post* measured achievements from the entire portfolio will also be published.

XI. Process and Procedural Issues

1. The Commission, the assigned Commissioner, the assigned Administrative Law Judge, or the Energy Division may utilize both formal and informal procedural vehicles as needed to (1) revise the Rules and / or any of its referenced documents, in whole or in part, at any time, upon request by interested parties or on its own initiative, and (2) resolve disputes among or complaints from various market participants, as circumstances warrant. In addition, nothing in these Rules preclude the Commission from planning and developing future energy efficiency programs, or delegating that responsibility to the assigned Commissioner, the assigned Administrative Law Judge or to Energy Division in the future.

2. The Assigned Administrative Law Judge or Commission staff may hold workshops or other forums, as needed, for interested parties, customers and market actors to provide input and feedback on energy efficiency-related issues.

3. Any program proposal for energy efficiency funding must describe a dispute resolution process to be used in dealing with complaints from end-use gas or electric consumers participating or attempting to participate in the program. In programs where the Program Administrators hold contracts with third parties, those contracts will also be required to include dispute resolution provisions.

4. With input from the Program Advisory Groups, the Program Administrators should jointly submit for Commission consideration proposed fund-shifting rules with

their PY2006-PY2008 program applications. When finalized by the Commission, such rules shall be incorporated into this document.

APPENDIX A: Reference Documents
APPENDIX B: Common Terms and Definitions

APPENDIX A: Reference Documents

1. Energy Action Plan
2. CPUC Decision 05-01-055 "Interim Opinion on the Administrative Structure for Energy Efficiency: Threshold Issues"
3. CPUC Decision 04-09-060 "Interim Opinion: Energy Savings Goals for Program Year 2006 and Beyond." See attached tables for the savings goals adopted in that decision, by IOU service territory.
4. Standard Practice Manual. Economic Analysis of Demand-Side Management Programs. October 2001.
5. Database for Energy Efficient Resources (DEER)
6. Methodology and Forecast of Long Term Avoided Costs for the Evaluation of California Energy Efficiency Programs ***(link to be provided before document is made public)***
7. CPUC Energy Efficiency Program Reporting Requirements Manual ***(to be developed by Energy Division staff before Dec. 2005)***
8. CPUC Energy Efficiency Program EM&V Protocols ***(to be developed before Dec. 2005)***
9. Fund Shifting Rules ***(to be adopted by the Commission in the decision approving PY2006-PY2008 program plans)***

Energy Efficiency Programs
Approved Savings Goals and Budgets 2006 through 2013 (D.04-09-060)

SoCalGas

Year	Gas Savings Annual Goal (MMTh/Yr)	Cumulative Gas Savings (MMTh)**
2006	14.7	34
2007	19.3	53.3
2008	23.3	76.6
2009	27.2	103.8
2010	28.3	132.1
2011	29.9	162
2012	32.3	194.3
2013	35.8	**230.1**

The 2006 cumulative energy savings therm goal includes the cumulative impact of 19.3 MMtherms from 2004-2005 programs.

SDG&E

Year	Gas Savings Annual Goal (MMTh/Yr)	Cumulative Gas Savings (MMTh)**	Energy Savings Annual Goal (GWH/Yr)	Cumulative Energy Savings (GWH)**	Demand Reductions (MW/Yr)	Cumulative Demand Reductions (MW)**
2006	2.7	6.3	280.5	821.5	54.6	155.3
2007	3.1	9.4	285.1	1106.6	54.2	209.5
2008	3.7	13.1	284.4	1391	54	263.5
2009	4.1	17.2	282.3	1673.3	53.6	317.1
2010	4.5	21.7	273.6	1946.9	52	369.1
2011	4.9	26.6	262.5	2209.4	49.9	419
2012	5.3	31.9	221.7	2431.1	42.1	461.1
2013	5.7	**37.6**	214.9	**2646**	40.8	**501.9**

** The 2006 cumulative demand reduction goal includes the cumulative impact of 100.7 MW from 2004-2005 programs.
The 2006 cumulative energy savings goal includes the cumulative impact of 541 GWH and 3.6 MMtherms from 2004-2005 programs.

Energy Efficiency
Programs
Approved Savings Goals and Budgets 2006 through 2013 (D.04-09-060)

SCE

Year	Energy Savings Annual Goal (GWH/Yr)	Cumulative Energy Savings (GWH)**	Demand Reductions (MW/Yr)	Cumulative Demand Reductions (MW)**
2006	922	2575	207	541
2007	1046	3621	219	760
2008	1167	4788	246	1006
2009	1189	5977	249	1255
2010	1176	7153	247	1502
2011	1164	8317	245	1747
2012	1151	9468	241	1988
2013	1139	**10607**	240	**2228**

The 2006 cumulative energy savings therm goal includes the cumulative impact from 2004-2005 programs.

PG&E

Year	Gas Savings Annual Goal (MMTh/Yr)	Cumulative Gas Savings (MMTh)**	Energy Savings Annual Goal (GWH/Yr)	Cumulative Energy Savings (GWH)**	Demand Reductions (MW/Yr)	Cumulative Demand Reductions (MW)**
2006	12.6	32.6	829	2316	180	503
2007	14.9	47.5	944	3260	205	708
2008	17.4	64.9	1053	4313	228	936
2009	20.3	85.2	1067	5380	232	1168
2010	21.1	106.3	1015	6395	220	1388
2011	22	128.3	1086	7481	236	1624
2012	23	151.3	1173	8654	254	1878
2013	25.1	**176.4**	1277	**9931**	278	**2156**

** The 2006 cumulative demand reduction goal includes the cumulative impact from 2004-2005 programs.
The 2006 cumulative energy savings goal includes the cumulative impact from 2004-2005 programs.

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COMMON ENERGY EFFICIENCY TERMS AND DEFINITIONS

Advanced Technologies
Measures or processes which exceed the efficiency or thermodynamic performance of standard energy using equipment or processes.

Affiliate
Any person, corporation, utility, partnership, or other entity 5% or more of whose outstanding securities are owned, controlled, or held with power to vote, directly or indirectly either by an administrator or any of its subsidiaries, or by that administrator's controlling corporation and / or any of its subsidiaries as well as any company in which the administrator, its controlling corporation, or any of the administrator's affiliates exert substantial control over the operation of the company and / or indirectly have substantial financial interests in the company exercised through means other than ownership. For purposes of these Rules, "substantial control" includes, but is not limited to, the possession, directly and indirectly and whether acting alone or in conjunction with others, of the authority to direct or cause the direction of the management of policies of a company. A direct or indirect voting interest of five percent (5%) or more by the administrator, its subsidiaries, or its affiliates in an entity's company creates a presumption of control.

Avoided cost
Cost representing the value of the electricity or natural gas that, in the absence of a program, would need to be procured and delivered to an individual consumer.

Baseline Data
The initial base metric for comparing the net result of programmatic changes versus what would have happened in the absence of the program or activity.

Coincident Peak Demand
The metered or estimated demand of a device, circuit, or building that occurs at exactly the same time as the system peak for a given year and weather condition.

Community Choice Aggregators
Organizations created by local governments pursuant to Assembly Bill 117 for the purpose of procuring power and administering energy efficiency programs on behalf of local citizens.

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Competitive solicitation
The process whereby parties are requested to submit bids offering innovative approaches to energy savings or improved program performance.

Conservation
Reduction of a customer's energy use achieved by relying on changes to the customer's behavior which may result in a lower level of end use service.

Conservation Measures
Activities and / or behaviors aimed at reducing energy consumption.

Conservation Programs
Programs which are intended to influence customer behavior as a means to reduce energy use.

Cost Effectiveness
An indicator of the relative performance or economic attractiveness of any energy efficiency investment or practice when compared to the costs of energy produced and delivered in the absence of such an investment.

Cream Skimming
Cream skimming results in the pursuit of a limited set of the most cost-effective measures, leaving behind other cost-effective opportunities. Cream skimming becomes a problem when lost opportunities are created in the process.

Cross Subsidization
Benefits enjoyed by one group, such as a customer class, that are funded by another group.

Customer
Any person or entity that pays an electric and / or gas bill to an IOU and that is the ultimate consumer of goods and services including energy efficiency products, services, or practices.

Dual Test
The requirement that an energy efficiency activity pass both the TRC and the PAC cost-effectiveness test.

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Effective Useful Life
An estimate of the median number of years that the measures installed under the program are still in place and operable.

Electricity Savings
Reduced electricity use (or savings) produced by either energy efficiency investments which maintain the same level of end use service or conservation actions which usually reduce energy use by reducing the quantity or quality of the baseline energy services demanded.

Emerging Technologies
New energy efficiency technologies, systems, or practices that have significant energy savings potential but have not yet achieved sufficient market share (for a variety of reasons) to be considered self sustaining or commercially viable. Emerging technologies include early prototypes of hardware, software, design tools or energy services that if implemented will result in energy savings.

End Use
1) The purpose for which energy is used (e.g. heating, cooling, lighting).
2) A class of energy use that an energy efficiency program is concentrating efforts upon. Typically categorized by equipment purpose, equipment energy use intensity, and/or building type.

Energy Efficiency
Activities or programs that stimulate customers to reduce customer energy use by making investments in more efficient equipment or controls that reduce energy use while maintaining a comparable level of service as perceived by the customer.

Energy Efficiency Measure
An energy using appliance, equipment, control system, or practice whose installation or implementation results in reduced energy use (purchased from the distribution utility) while maintaining a comparable or higher level of energy service as perceived by the customer. In all cases energy efficiency measures decrease the amount of energy used to provide a specific service or to accomplish a specific amount of work (e.g., kWh per cubic foot of a refrigerator held at a specific temperature, therms per gallon of hot water at a specific temperature, etc). For the purpose of these Rules, solar water heating is an eligible energy efficiency measure.

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Energy Efficiency Programs
Programs that reduce customer energy use by promoting energy efficiency investments or the adoption of conservation practices or changes in operation which maintain or increase the level of energy services provided to the customer.

Energy Efficiency Savings
The level of reduced energy use (or savings) resulting from the installation of an energy efficiency measure or the adoption of an energy efficiency practice, subject to the condition that the level of service after the investment is made is comparable to the baseline level of service. The level of service may be expressed in such ways as the volume of a refrigerator, temperature levels, production output of a manufacturing facility, or lighting level per square foot.

Evaluation, Measurement and Verification (EM&V)
Activities which evaluate, monitor, measure and verify performance or other aspects of energy efficiency programs or their market environment.

Financial Incentive
Financial support (e.g., rebates, low interest loans, free technical advice) provided to customers as an attempt to motivate the customers to install energy efficient measures or undertake energy efficiency projects. (See Rebate)

Free riders (Free Ridership)
Customers who would have installed the program measure or equipment even without the financial incentive provided by the program.

Fuel Substitution
Programs which are intended to substitute energy using equipment of one energy source with a competing energy source (e.g. switch from electric resistance heating to gas furnaces).

Funding Cycle
Period of time for which funding of energy efficiency programs have been approved by the Commission.

Gas Savings
Reduced natural gas usage (or savings) produced by either energy efficiency investments which maintain the same level of end use service or conservation actions which can reduce energy use by reducing the quantity or quality of the baseline services provided.

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Incremental Measure Cost
The additional cost of purchasing and installing a more efficient measure. Calculated from the price differential between energy-efficient equipment and standard or baseline measures. The inclusion of the word "gross" in the definition reflects incremental measure costs, which have not been adjusted for free riders. Net incremental measure costs means that the term has been adjusted for free riders; i.e., the net-to-gross ratio has been applied.

Information & Education
Information and education programs can provide a wide range of activities designed to inform or educate a customer or customer group. Generally these range from in-depth, one-on-one, on-site or centrally located classroom style instruction in topics related to energy efficiency, to programs that target information to specific types of customers, to general information provided to a wide range of customers, to short inexpensive public service announcements on FCC approved communication frequencies. Programs intended to provide customers with information regarding generic (not customer-specific) conservation and energy efficiency opportunities. For these programs, the information may be unsolicited by the customer.

Innovation Incubator
A low-cost, stand-alone program designed to grow innovative energy saving programs and processes for the larger portfolio over the long term. The incubator funds new program ideas that meet reasonable scientific scrutiny for potentially cost-effective energy savings and peak reduction.

Institutional Barriers
A type of market barrier: In this case, the internal organizational hurdles that inhibit the evaluation and or choice to take energy efficiency actions.

Least Cost Best Fit
The procurement of cost-effective supply and demand-side resources that, regardless of ownership, meet capacity and energy deliverability requirements. Energy efficiency resources are constructed from the bottoms up approach that aggregates the demand and energy savings from various energy-saving measures and activities into applicable end-use categories such as space cooling, space heating, lighting, and refrigeration, in order to provide near- and long-term peaking, intermediate, and baseload requirements.

Levelized Cost

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An estimate of the annualized cost of installing an energy efficiency measures divided by the annual energy savings. Typically calculated by multiplying the incremental cost of the measure by capital recovery factor (function of discount rate and expected useful life of the measure) and then dividing by annual energy savings.

Load Management
Programs which reduce or shift electric peak demand away from periods of high cost electricity to non-peak or lower cost time periods, with a neutral effect on or negligible increase in electric use.

Load Serving Entities
Entities that provide electric and / or gas commodity to customers.

Lost Opportunities
Energy efficiency measures that offer long-lived, cost-effective savings that are fleeting in nature. A lost opportunity occurs when a customer does not install an energy efficiency measure that is cost-effective at the time, but whose installation is unlikely to be cost-effective if the customer attempts to install the same measure later.

Marketing and Outreach
Communications activities designed to identify, reach and motivate potential customers to take actions to either learn more about or invest in energy efficiency opportunities.

Measures
1) Specific customer actions which reduce or otherwise modify energy end use patterns.
2) A product whose installation and operation at a customer's premises results in a reduction in the customer's on-site energy use, compared to what would have happened otherwise.

Net to Gross Ratio
A ratio or percentage of net program impacts divided by gross or total impacts. Net to gross ratios are used to estimate and describe the free-ridership that may be occurring within energy efficiency programs.

Non-price Factors
Those factors included in cost effectiveness tests, other than commodity prices and transportation and distribution costs, e.g., environmental factors.

Partnership

Coordinated efforts of a utility and a local government or other entity to use the strengths of both parties to achieve energy savings goals.

Peak Demand-General (kW)
1) The maximum level of metered demand during a specified period, such as a billing month, or during a specified peak demand period.
2) Extremely high energy use, usually with reference to a particular time period.

Peak Savings- Coincident (kW)
The estimated peak (e.g. highest) demand savings (MW or kW) from a program for a specific time, date, and location coincident with the forecasted system peak for a given area and a given set of weather conditions. This estimate must also include consideration of the likelihood that the equipment is actually on at the time of coincident peak. Usage of this definition: Resource planning- for making adjustments to forecasts of peak usage for understanding reserve margins and reliability purposes.

Peak Savings- Daily Average (kW)
The average peak demand savings (kWh impacts/ # of hours in the peak rate period) for a given utility during their peak season. Example for SCE-Peak period is for summer weekdays from 12-6 PM. So - daily average savings would be the number of kWh saved/ # of kWhs saved for all weekday peak periods (= kWh/5 days/week * 12 weeks/ summer* 6 hours/day = kW average. Usage: Cost effectiveness analysis, primarily for valuing energy savings that occur during the peak period using "peak" average avoided costs.

Peak Savings –Non coincident (kW)
Estimated highest level of peak savings(kW or MW) for a given program during the peak time period for a given utility on the hottest day of a "normal" weather year. Thus if a group of measures saved 1MW at 2Pm, 1.7 MW at 3PM, 1.6 MW at 4PM, 1.0 MW at 5Pm and 1.2 MW at 6 pm, the peak non coincident savings would be 1.7 MW. This savings estimate does not take into account how many of the affected devices or equipment will be operating during the peak time period. Usage: Cost effectiveness analysis and procurement.

Peer Review Group (PRG)
A subset of the Program Advisory Group consisting of non-financially interested members who will review utility submittals to the Commission, assess overall portfolio plans, plans for bidding out pieces of the portfolio, and the bid evaluation criteria for selecting third-party programs.

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Performance Basis
The metrics by which a program or a group of programs is measured and evaluated for the purpose of assessing the program(s) success at displacing or deferring more costly supply-side resources and or increasing more energy efficient design and practices.

Performance Uncertainties
A market barrier: refers to new technologies or systems whose efficiency or system performance levels are uncertain due to lack of experience.

Portfolio
All IOU and non-IOU energy efficiency programs funded by ratepayers that are implemented during a program year or cycle. May also refer to a group of programs sponsored, managed, and contracted for by a particular IOU.

Pre-commercialization
A phase in the life of a product before it is readily available on the market.

Program
A collection of defined activities and measures that

- are carried out by the administrator and / or their subcontractors and implementers,
- target a specific market segment, customer class, a defined end use, or a defined set of market actors (e.g. designers, architects, homeowners),
- are designed to achieve specific efficiency related changes in behavior, investment practices or maintenance practice in the energy market,
- and are guided by a specific budget and implementation plan.

Program Activities
Any action taken by the program administrator or program implementer in the course of implementing the program.

Program Administrator
An entity tasked with the functions of portfolio management of energy efficiency programs and program choice.

Program Advisory Group (PAG)
Advisory groups for each utility service area composed of energy efficiency experts representing customer groups, academic organizations, environmental organizations, agency staff and trade allies in the energy market.

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Program Cycle
The period of time over which a program is funded and implemented.

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Program Implementation Plan
A detailed description of a program that includes program theory, planned program processes, expected program activities, program budget, projected energy savings and demand reduction and other program plan details as required by the Commission, assigned ALJ, or Energy Division.

Program Implementers
An entity or person that puts a program or part of a program into practice based on contacts or agreements with the portfolio manager.

Program Strategy
The set of activities deployed by the program in order to achieve the program's objectives.

Program Year(s)
The calendar year(s) during which the program operates.

Ratepayer
Those customers who pay for gas or electric service under regulated rates and conditions of service.

Rebate
A financial incentive paid to the customer in order to obtain a specific act, typically the installation of energy efficiency equipment.

Resource Value
An estimate of the net value of reliable energy (e.g., kWh, therms) and capacity (e.g., kW, Mcfd) reductions resulting from an energy efficiency program. This includes the net present value of all of the costs associated with a program and all of the estimated benefits (both energy and capacity). The calculation of resource value and associated benefits should be consistent with the avoided costs adopted in the most recent Commission proceeding or otherwise provided for by the Commission.

Service Area
The geographical area served by a utility.

Short Term/Long Term
Planning terms referring to the timing or expected timing of program activities, program impacts, or program funding. Short term indicates program activities, program impacts, or program funding that occurs during the current program cycle.

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Long term indicates program activities, program impacts, or program funding that occurs beyond the current program cycle.

Source-BTU Consumption
Conversion of retail energy forms (kWh, therms) into the BTU required to generate and deliver the energy to the site. This conversion is used to compare the relative impacts of switching between fuel sources at the source or BTU level for the three-prong test required for fuel-substitution programs.

Standard Practice Manual
The California Standard Practice Manual: Economic Analysis of Demand-side Programs and Projects is jointly issued by the California Public Utilities Commission and the California Energy Commission. It defines the standard cost effectiveness tests and their components used for energy efficiency programs.

Statewide
Energy efficiency programs or activities that are essentially similar in design and available in all Commission regulated utility service areas in California.

Third Party/Non-IOU
Non-regulated implementers of ratepayer funded energy efficiency activities.

(END OF APPENDIX B)

(END OF ATTACHMENT 3)

ATTACHMENT 4

EXCERPT FROM D.92-09-080 ON DUAL-COST ISSUE

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EXCERPT FROM D.92-09-080

DSM programs are funded by ratepayers as a whole, through utility revenue requirements (which are reflected in utility rates), and in many cases through out-of-pocket contributions by participating customers (customer contribution). Direct assistance, information and energy audit programs are funded entirely by revenue requirement authorizations. Many DSM "resource" programs, on the other hand, require customer contributions. DSM resource programs are designed to defer or avoid the cost of more expensive supply options. For these types of programs, individual participating customers are motivated to contribute a portion of the resource cost because they realize a direct return from that investment, in the form of bill savings.

Because the utility revenue requirement can be different from the total cost of the DSM program, due to customer contributions, we think of two types of costs when considering DSM program cost-effectiveness: total resource costs and utility costs. Total resource costs represent the total cost of obtaining the DSM program as a utility resource, and include both the program participants' out-of-pocket costs (i.e., customer contribution) and the utility's revenue requirement costs (e.g., rebates, administrative expenses). Utility costs reflect the revenue requirement impact of obtaining a DSM resource, excluding any customer contributions.

Total resource costs are considered in the total resource cost (TRC) test of cost-effectiveness, which measures the net impact of a DSM program as a resource option, based on the total costs of the resource. Utility costs are considered in the utility cost (UC) test of cost-effectiveness, which measures the net impact of acquiring a DSM resource, based on the utility costs of the program. For both the TRC and UC tests, the benefit side of the equation reflects the value of the energy and capacity saved (i.e., avoided costs). The results of these tests can be expressed as benefit-cost ratios (benefits divided by costs, in net present value), or as net benefits (benefits minus costs, in net present value). We refer to the net benefits from a TRC perspective as "total resource net benefits" and those from a UC perspective as "utility net benefits."

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By definition, utility and total resource costs are identical for supply-side resources. This is because the full costs of supply-side resource are recovered through the utility's revenue requirement; i.e., there are no individual customers that pay for a portion of the resource. Therefore, on the supply side, bidders who maximize total resource net benefits are simultaneously striving to minimize utility costs. This is not necessarily the case on the demand side, where a bidder may be able to achieve the same level of total resource net benefits with different levels of utility costs (e.g., different levels of rebates or corresponding customer contributions).

Moreover, since individual customers that participate in DSM resource programs realize direct bill savings, they are generally willing to fund a greater percentage of the investment than non-participating customers. This is not the case for supply-side resources, where all customers are assumed to benefit from the investment equally and, within the same rate class, pay an equal price for the supply-side resource. Hence, unlike on the supply-side, bidders on the demand side may be able to leverage participating customers' private funds to the benefit of all ratepayers. One of the major issues in this phase of the proceeding is how to address this "dual-cost" characteristic and associated leveraging capability of DSM, in evaluating bid proposals.

Source: Decision 92-09-080, 45 CPUC 2d, p. 569.

(END OF ATTACHMENT 4)

ATTACHMENT 5

COMPILED E-TABLES COMPARING *EX ANTE* AND *EX POST* PERFORMANCE BASIS

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SUMMARY (All IOUs)
All Dollars are in thousands

		(A) Target	(B) First Earnings Claim	(C)* (B)(1) / (E)(1)	(D) Second Earnings Claim	(E) Third Earnings Claim	(F) Fourth Earnings Claim	(G)** [(F)(1) - (B)(1)] / (B)(1)
	1994							
(1)	**Performance Earnings Basis (PEB)**	$ 277,464	$ 497,017		$ 492,800	$ 600,602	$ 600,262	
(2)	**Change in PEB from Previous Claim**		$ 219,553		$ (4,217)	$ 107,802	$ (340)	
	% Change in PEB		79%	**83%**	-1%	22%	0%	**21%**
	1995							
(1)	**Performance Earnings Basis (PEB)**	$ 236,561	$ 374,809		$ 349,544	$ 428,822	NA	
(2)	**Change in PEB from Previous Claim**		$ 138,248		$ (25,265)	$ 79,278		
	% Change in PEB		58%	**87%**	-7%	23%		**14%**
	1996							
(1)	**Performance Earnings Basis (PEB)**	$ 140,078	$ 298,944		$ 270,945	$ 311,540	NA	
(2)	**Change in PEB from Previous Claim**		$ 158,866		$ (27,998)	$ 40,594		
	% Change in PEB		113%	**96%**	-9%	15%		**4%**
	1997							
(1)	**Performance Earnings Basis (PEB)**	$ 156,085	$ 258,981		$ 210,877	$ 240,081	NA	
(2)	**Change in PEB from Previous Claim**		$ 102,896		$ (48,104)	$ 29,204		
	% Change in PEB		66%	**108%**	-19%	14%		**-7%**

Notes:

The PEB information can be found on the respective utility program year Table E-1 for Shared Savings programs submitted in the Annual Earnings Assessment Proceedings.
*** Percent of Total Ex Post Net Benefits (PEB) Captured by the First Earnings Claim.**
**** Percentage Difference In the Fourth/Third Earnings Claim PEB and the First Earnings Claim PEB Relative to First Earnings Claim PEB.**
Program Year 1994 is based on the Fourth Earnings Claim PEB. All other years are based on the Third Year Earnings Claim PEB.

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Pacific Gas & Electric Company
All Dollars are in thousands

		(A)	(B)	(C)*	(D)	(E)	(F)	(G)**
		Target	First Earnings Claim	(B)(1) / (E)(1)	Second Earnings Claim	Third Earnings Claim	Fourth Earnings Claim	[(F)(1) - (B)(1)] / (B)(1)
	1994							
(1)	**rformance Earnings Basis (PE**	$ 129,227	$ 238,946		$ 255,902	$ 364,889	$ 362,864	
(2)	**e in PEB from Previous Claim**		$ 109,719		$ 16,956	$ 108,987	$ (2,025)	
	% Change in PEB		85%	**65%**	7%	43%	-1%	**52%**
	1995							
(1)	**rformance Earnings Basis (PE**	$ 184,274	$ 232,224		$ 204,235	$ 283,690	NA	
(2)	**e in PEB from Previous Claim**		$ 47,950		$ (27,989)	$ 79,455		
	% Change in PEB		26%	**82%**	-12%	39%		**22%**
	1996							
(1)	**rformance Earnings Basis (PE**	$ 78,969	$ 101,725		$ 89,747	$ 120,191	NA	
(2)	**e in PEB from Previous Claim**		$ 22,756		$ (11,978)	$ 30,444		
	% Change in PEB		29%	**85%**	-12%	34%		**18%**
	1997							
(1)	**rformance Earnings Basis (PE**	$ 115,793	$ 126,324		$ 100,801	$ 132,250	NA	
(2)	**e in PEB from Previous Claim**		$ 10,531		$ (25,523)	$ 31,449		
	% Change in PEB		9%	**96%**	-20%	31%		**5%**

Notes:

The PEB information can be found on the respective utility program year Table E-1 for Shared Savings programs submitted in the Annual Earnings Assessment Proceedings.
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San Diego Gas & Electric Company
All Dollars are in thousands

		(A) Target	(B) First Earnings Claim	(C)* (B)(1) / (E)(1)	(D) Second Earnings Claim	(E) Third Earnings Claim	(F) Fourth Earnings Claim	(G)** [(F)(1) - (B)(1)] / (B)(1)
	1994							
(1)	**Performance Earnings Basis (PEB)**	$ 33,260	$ 82,553		$ 75,205	$ 79,699	$ 78,163	
(2)	**Change in PEB from Previous Claim**		$ 49,293		$ (7,348)	$ 4,494	$ (1,536)	
	% Change in PEB		148%	**104%**	-9%	6%	-2%	**-5%**
	1995							
(1)	**Performance Earnings Basis (PEB)**	$ 40,070	$ 123,241		$ 131,492	$ 131,320	NA	
(2)	**Change in PEB from Previous Claim**		$ 83,171		$ 8,251	$ (172)		
	% Change in PEB		208%	**94%**	7%	0%		**7%**
	1996							
(1)	**Performance Earnings Basis (PEB)**	$ 34,990	$ 135,551		$137,302	$ 148,413	NA	
(2)	**Change in PEB from Previous Claim**		$ 100,561		$ 1,751	$ 11,110		
	% Change in PEB		287%	**91%**	1%	8%		**9%**
	1997							
(1)	**Performance Earnings Basis (PEB)**	$ 15,877	$ 54,057		$ 53,143	$ 52,667	NA	
(2)	**Change in PEB from Previous Claim**		$ 38,181		$ (914)	$ (476)		
	% Change in PEB		240%	**103%**	-2%	-1%		**-3%**

Notes:

The PEB information can be found on the respective utility program year Table E-1 for Shared Savings programs submitted in the Annual Earnings Assessment Proceedings.
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**** Percentage Difference In the Fourth/Third Earnings Claim PEB and the First Earnings Claim PEB Relative to First Earnings Claim PEB.**
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Southern California Edison
All Dollars are in thousands

		(A) Target	(B) First Earnings Claim	(C)* (B)(1) / (E)(1)	(D) Second Earnings Claim	(E) Third Earnings Claim	(F) Fourth Earnings Claim	(G)** [(F)(1) - (B)(1)] / (B)(1)
	1994							
(1)	**Performance Earnings Basis (PEB)**	$ 107,479	$ 159,350		$ 145,525	$ 139,846	$ 143,067	
(2)	**Change in PEB from Previous Claim**		$ 51,871		$ (13,825)	$ (5,679)	$ 3,221	
	% Change in PEB		+48%	**114%**	-9%	-4%	+2%	**-10%**
	1995							
(1)	**Performance Earnings Basis (PEB)**	$ 2,696	$ 5,391		$ 3,472	$ 3,467	NA	
(2)	**Change in PEB from Previous Claim**		$ 2,695		$ (1,919)	$ (5)		
	% Change in PEB		+100%	**155%**	-36%	-0%		**-36%**
	1996							
(1)	**Performance Earnings Basis (PEB)**	$ 21,173	$ 56,145		$ 40,953	$ 39,993	NA	
(2)	**Change in PEB from Previous Claim**		$ 34,972		$ (15,192)	$ (960)		
	% Change in PEB		+165%	**140%**	-27%	-2%		**-29%**
	1997							
(1)	**Performance Earnings Basis (PEB)**	$ 17,758	$ 69,520		$ 47,853	$ 46,084	NA	
(2)	**Change in PEB from Previous Claim**		$ 51,762		$ (21,667)	$ (1,769)		
	% Change in PEB		+291%	**151%**	-31%	-4%		**-34%**

Notes:

The PEB information can be found on the respective utility program year Table E-1 for Shared Savings programs submitted in the Annual Earnings Assessment Proceedings.
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Program Year 1994 is based on the Fourth Earnings Claim PEB. All other years are based on the Third Year Earnings Claim PEB.

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Southern California Gas Company
All Dollars are in thousands

		(A) Target	(B) First Earnings Claim	(C)* (B)(1) / (E)(1)	(D) Second Earnings Claim	(E) Third Earnings Claim	(F) Fourth Earnings Claim	(G)** [(F)(1) - (B)(1)] / (B)(1)
	1994							
(1)	**Performance Earnings Basis (PEB)**	$ 7,498	$ 16,168		$ 16,168	$ 16,168	$ 16,168	
(2)	**Change in PEB from Previous Claim**		$ 8,670		$ -	$ -	$ -	
	% Change in PEB		116%	**100%**	0%	0%	0%	**0%**
	1995							
(1)	**Performance Earnings Basis (PEB)**	$ 9,521	$ 13,953		$ 10,345	$ 10,345	NA	
(2)	**Change in PEB from Previous Claim**		$ 4,432		$ (3,608)	$ -		
	% Change in PEB		47%	**135%**	-26%	0%		**-26%**
	1996							
(1)	**Performance Earnings Basis (PEB)**	$ 4,946	$ 5,523		$ 2,943	$ 2,943	NA	
(2)	**Change in PEB from Previous Claim**		$ 577		$ (2,580)	$ -		
	% Change in PEB		12%	**188%**	-47%	0%		**-47%**
	1997							
(1)	**Performance Earnings Basis (PEB)**	$ 6,658	$ 9,080		$ 9,080	$ 9,080	NA	
(2)	**Change in PEB from Previous Claim**		$ 2,422		$ -	$ -		
	% Change in PEB		36%	**100%**	0%	0%		**0%**

Notes:

The PEB information can be found on the respective utility program year Table E-1 for Shared Savings programs submitted in the Annual Earnings Assessment Proceedings.
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**** Percentage Difference In the Fourth/Third Earnings Claim PEB and the First Earnings Claim PEB Relative to First Earnings Claim PEB.**
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(END OF ATTACHMENT 5)