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EXCERPTS FROM D.06-06-063 IN R.04-04-025
AND DECEMBER 21, 2006 COMPLIANCE RULING

Excerpts from Decision 06-06-063

Pages 65-75

During the review of the utilities' June 1, 2005 portfolio plans, Energy Division's consultant (TecMarket Works) pointed out an anomaly for selected programs where the TRC was greater than the PAC. Given the definition of these tests (see above), the opposite should generally be true because the PAC test does not include the costs incurred by participating customers, while the TRC test does includes these costs. The exception to this general rule can happen given the SPM definition of the TRC test when very large "transfer payments" between non-participating and participating ratepayers occur. But as discussed below, this should not be a frequent occurrence if the proper definition of transfer payments is used and installation costs are accounted for appropriately.

TecMarket Works determined upon review that "the condition is E3-based and is associated with program conditions that occur when an incentive equals the full cost of the measure."[1] TecMarket Works concluded that "this calculation approach appears to be different than the calculation approach described in the Standard Practice Manual" and that "there is a need to confirm with the [utilities] the calculation approach that should be used to assess the portfolios and make that approach consistent in the E3 calculator and in the Standard Practice Manual."[2]

This issue was discussed during the workshop process and addressed in DRA's written comments. Parties now appear to agree that this was not an error in the E3 calculator, but rather an issue with how costs are defined in direct installation-type programs and in particular, how those costs are defined when the sum of direct install costs plus rebates/incentives exceed the incremental measure cost.

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[1] TecMarket Works Report, p. 34.

[2] TecMarket Works Report, p. 14.

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In its written comments, DRA characterizes this anomaly as one arising from the SPM definition of the costs that comprise the TRC test. According to DRA, the TRC test "excludes as a cost ratepayer dollars paid to a program participant."[3] Based on this understanding of the TRC test, DRA goes on to describe the following scenario for programs where participating customers incur no out-of-pocket expenditures:

> If a program implementer makes a lump sum incentive payment to contractors that covers all costs associated with a retrofit at no cost to the customer, that lump sum incentive payment will not be included as a cost into the TRC. Under such a scenario, the TRC would be greater than the PAC, because the TRC would exclude as a cost ratepayer dollars paid to a program participant and there are zero net participant costs, whereas the PAC would include ratepayer dollars paid to a program participant as a cost to the administrator. The resulting TRC net resource benefits would also exclude incentive payments as part of the program costs and therefore would be superficially high for such 'no cost' retrofit programs.[4]

DRA urges the Commission to consider instituting a cap on participant incentive amounts. In DRA's view, such a cap would serve to discourage program implementers or utility program administrators from shifting program funding into "no cost" retrofit programs to increase TRC net resource benefits. DRA also recommends that the input fields for the E3 calculator be revised to separately capture the incremental equipment cost of the energy efficiency measure as well as the installation costs.

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[3] *Comments of DRA in Response to the ALJ's Ruling Soliciting Preworkshop Comments on the Draft Report on the 2006 Update to Avoided Costs and E3 Calculator*, March 9, 2006 (DRA Pre-Workshop Comments), p. 7. See also: *Comments of DRA in Response to the ALJ's Ruling Soliciting Postworkshop Comments on the E3 Report on 2006 Update to Avoided Cost and E3 Calculator*, March 27, 2006 (DRA Post-Workshop Comments), p. 9.

[4] *Id.* See also: *Comments of DRA in Response to the ALJ's Ruling Soliciting Postworkshop Comments on the E3 Report on 2006 Update to Avoided Cost and E3 Calculator*, March 27, 2006 (DRA Post-Workshop Comments), p. 9.

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Based on the record in this proceeding, we find that the treatment of costs in the TRC test has caused some anomalies in E3 model calculations that can, and should, be corrected for future applications of the TRC test and the E3 calculator. However, we do not agree with DRA's framing of the problem as a definitional issue that arises from the SPM.

The SPM is very clear on what the TRC represents, as are our Rules. The TRC test of cost-effectiveness includes *all* costs associated with the energy efficiency activity, whether paid for out-of-pocket by program participants or by non-participants through the authorized revenue requirements that fund the programs.[5]

The only costs that are excluded in the TRC test are those "incentives" that are to be are considered and treated as transfer payments. The SPM specifically directs that such incentives are restricted to include "only dollar benefits such as rebates or rate incentive (monthly bill credits)."[6] The conceptual basis for ignoring transfer payments in the development of the TRC is similar to the basis for ignoring tax credits in the Societal version of the test. That is, when some taxpayers receive cash transfers (in the form of a tax credit) as a result of higher taxes paid by others, economic theory suggests that those transfers be excluded when calculating the costs and benefits of the investment from the societial perspective. Historically, the SPM has incorporated a similar concept with respect to cash rebates to participating customers in the TRC test. That is, they have been excluded on both the benefit and cost side of the TRC equation, and considered to be a transfer payment between participating and non-participating customers.

In order to more fully explore the anomalies observed in the E3 calculator results for TRC cost-effectiveness and discuss ways to correct them, as well as respond to some of the comments on the draft decision on this issue, we need to further illustrate with numerical examples what the TRC and PAC tests intend to capture in their respective formulas. So, in a very simplified example, if the resource benefits are $3,000, the participant's measure installation cost is $2,000,

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[5] SPM, p. 18.

[6] SPM p. 11 (footnote 3 on page 11); 21.

the program administration cost is $100 (not including the cash rebate) , and the participating customer receives a $1,000 cash rebate for installing the measure, the TRC equation *before cancelling out the cash rebate as a transfer* would look like this:

Benefit side: $1,000 + $3,000

(Benefit to participant of cash rebate + Resource benefits to all ratepayers)
Cost side: $2,000 + $100 +$1,000

(Participant's cost + Program admin cost (not including rebate) + Cost to non-participating customers of cash rebate)

By treating cash rebates as a dollar transfer payment, the SPM formula simply drops the $1,000 payment from both the benefit and cost side of the equation, producing TRC net resource benefits in this example of $900 ($3,000-$2,100) and a TRC benefit-cost ratio of 1.428 ($3,000/$2,100).

The PAC test, on the other hand, includes the cash rebate to the participating customer in calculating costs, but ignores the participant's costs. This is because the perspective of this test is the impact of the energy efficiency investment on utility revenue requirements. While the cash rebate to participating customers increases those requirements, the measure installation costs paid by the participant do not. The participant benefit of receiving a cash transfer payment from non-participating customers is not part of this test's perspective, so it never shows up on the benefit side of the equation at all.

Accordingly, for the simple numerical example presented above where the customer installs the measure and gets a cash rebate of $1,000, the PAC equation would look like this:

PAC Benefit side: $3,000

(Resource benefits to all ratepayers)

PAC Cost side: $100 +$1,000

(Program admin cost (not including rebate) + Cash rebate to participating customer)

Therefore, PAC net benefits would be $1,900 ($3,000 - $1,100) and the PAC benefit cost ratio would be 2.73 ($3,000/$1,100).

Prior to electric industry restructuring in the mid-1990s, most of the energy efficiency resource programs were similar in design to this numerical example—that is, participating customers would receive cash rebates to install energy efficient measures and equipment. Therefore, the term "incentive" and "rebate" were generally used interchangeably in the discussion of program costs and in the application of the SPM tests of cost-effectiveness. This is no longer the case, as pointed out in the workshop comments and discussion. Today, there are other forms of providing incentives to participating customers as well as other market actors purchasing and installing the equipment for the programs, resulting in misunderstandings and inconsistencies in how costs are being accounted for in the SPM tests and E3 calculator inputs. However, the manner in which the program is delivered or the rebate is provided to the customer should not result in different cost-effectiveness results, except in the very limited instances discussed below.

Let us look at the same simple numerical example under an early replacement "direct install" program design, where a third-party contractor replaces a customer's inefficient air conditioner with more efficient model. We assume that the resource benefits are $3,000, as in the prior example. We also assume that the utility incurs $100 in program administration costs. The utility authorizes the contractor to pay rebates of $1,000 on each installation. The contractor installs the unit at a cost of $2,000. The customer is presented with a bill for the $2,000 installation costs minus a $1,000 rebate. The contractor bills the utility for the $1,000 rebate given to the customer.

The SPM specifically states that "If the incentive is to offset a specific participant cost, as in a rebate-type incentive, the full customer cost (before the rebate) must be included in the PC_1 [participant cost]."[7] Consistent with the SPM formulas and definitions, the TRC and PAC tests would be calculated exactly the same as the example presented above for a program where the customer installs the equipment/measure instead of the third-party contractor, and receives a cash rebate:

TRC benefits: $3,000 **PAC benefits: $3,000**

[7] SPM, page 11, footnote 3.

TRC costs: $2,000 + $100 (Participant Costs + Program admin.)

PAC costs: $100 + $1,000 (Program admin. Costs + Cash rebate to participating customer paid through contractor)

TRC net benefits: $900; TRC benefit/cost ratio: 1.428

PAC net benefits: $1,900; PAC benefit/cost ratio: 2.73

Now let us look at an example where the direct install program does not bill or collect from the customer for any portion of the costs. Under both the TRC and PAC tests, the full $2,000 measure installation cost should appear as program administrator cost (rather than a participant cost), in addition to the $100 program administration costs. There would be no transfer payments or participant costs at all based on the SPM definition of these terms. The TRC test results would be the same as in the above examples. However, because the program results in higher utility revenue requirements (because now participants are incurring zero out-of-pocket costs), the PAC test results are not as favorable as in the previous two examples. In fact, the TRC and PAC test results would be identical to each other, as indicated below:

TRC benefits: $3,000 **PAC benefits: $3,000**

TRC costs: $2,000 + $100 (Direct install costs paid by utility + Program admin. costs)

PAC costs: $2,000 + $100 (Same as above)

TRC net benefits: $900; TRC benefit/cost ratio: 1.428

PAC net benefits: $900; PAC benefit/cost ratio: 1.428

These numerical examples serve to illustrate what should be obvious: A direct install program where the utility or its contractor performs the installation of a measure should not be more cost-effective from a TRC perspective than a rebate program that provides a cash rebate to the customer up to the full cost of installation. We recognize that there may be limited instances for program design purposes where the cash rebate to the customer exceeds the measure installation cost. Under these circumstances, the TRC results will be the same for both direct install and the rebate program (all other things being equal), given the transfer payment treatment of cash rebates in the SPM. However, the PAC

test will favor the direct install program. It was precisely to address these types of circumstances that we adopted the "Dual Test" of cost-effectiveness in our policy rules. Those rules recognize that both the TRC and PAC tests of cost-effectiveness need to be considered when evaluating program proposals, in order to ensure that program administrators and implementers do not spend more on rebates/cash incentives than absolutely necessary to achieve TRC net benefits.[8]

The discussion above also points out that when the SPM definition of transfer payments is properly implemented in the TRC test, participant costs are expected to be "non-negative." We recognize that there may be isolated instances where the energy efficiency measure actually costs less than the standard efficiency equipment, as PG&E points out in its comments on the draft decision.[9] However, one would not expect to see negative participant costs for the vast majority of measures or in the evaluation of program cost-effectiveness calculations where there is a mix of measures, if costs are inputted correctly into the E3 calculator and transfer payments are properly restricted per the SPM definition.

DRA's scenarios presume that if the participant pays no out-of-pocket costs under a direct-install program, then all of the costs associated with the equipment/measure installations simply disappear from the TRC cost-side of the equation. As discussed above in our third numerical example, that certainly should not be the case. Further, we note that this is not the case when the TRC

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[8] See D.05-04-051, Attachment 3, Section IV. In its comments on the draft decision, SCE correctly points out that a program may pass the TRC test but fail the PAC test under these circumstances, and therefore the draft decision proposed treatment of cash rebate costs in the TRC test was not fully consistent with the SPM. However, SCE's comments fail to acknowledge the more fundamental problem the draft decision identified; namely, the inconsistent treatment of incentives and participant costs in E3 calculator inputs and the calculation of TRC test results, particularly for direct install programs.

[9] PG&E gives the example in DEER of double pane clear windows and direct evaporative coolers, tankless gas water heaters, among others. However, a closer examination of the DEER dataset reveals that the incremental measure cost is not negative (set at 0) even when the difference in equipment cost is negative. As noted in the SPM, the equipment cost is only one element or the measure or participant cost.

test is performed for Low-Income Energy Efficiency programs, where participants generally incur no out-of-pocket expenditures for the installation of energy efficiency measures.

DRA also claims that when the customer rebate exceeds the equipment/measure installation costs, this creates "a distorted relationship between the TRC and the PAC benefit-cost ratios."[10] This should also not be the case if the SPM cost components are inputted into the E3 calculator in a manner consistent with the definition of both tests. Again, the TRC test reflects *all* participant and non-participant costs, meaning that the full resource costs of the energy efficiency investment must show up somewhere in the TRC cost-side of the equation with the limited exception of transfers of dollar benefits (rebates/monthly bill credits) to participants.

In our view, these clarifications speak to the need to ensure that the program cost components and transfer payments are properly entered into the E3 calculator (or in other platforms for calculating and reporting cost-effectiveness results) consistent with the SPM formulas and definitions, rather than the need to cap incentive payments, as DRA proposes. As discussed in Section 10.2, we request that Joint Staff, the utilities and their program advisory/peer review group members explore ways in which this can be best accomplished through technical workshops. There may also be refinements to the E3 calculator that can serve to flag potential input errors and inconsistencies (e.g., negative participant costs, incongruous differences between TRC and PAC test results), that can assist in the quality control of input data. These refinements should be considered and presented during the E3 calculator updating process, discussed in Section 11 below.

We emphasize that today's discussion of the TRC and PAC tests of cost-effectiveness does not speak to the design of programs (or is intended to cap incentives in any manner). Instead, it speaks to need to ensure that all costs are inputted into the E3 calculator, or any other calculation platform for the SPM tests, in a manner that is consistent with the SPM formulas and definitions, as discussed above.

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[10] *Comments of DRA in Response to the ALJ's Ruling Soliciting Postworkshop Comments on the E3 Report on 2006 Update to Avoided Cost and E3 Calculator*, March 27, 2006, p. 9.

Findings of Fact:

1. Given the definition of the TRC and PAC tests, it should generally be the case that TRC net benefits or benefit-cost ratios should be lower than the PAC cost-effectiveness results because the PAC test does not include the costs incurred by participating customers, while the TRC test does include these costs. The exception to this general rule can happen under the SPM definition of the TRC test when very large "transfer payments" between non-participating and participating ratepayers occur. However, as discussed in this decision, this should not be a frequent occurance if the proper definition of transfer payments is used and installation costs are accounted for properly.
2. The manner in which the energy efficiency program/measure is delivered or the rebate is provided to the participating customer should not alter cost-effectiveness results, all other things being equal, except under the very limited circumstances discussed in this decision.
3. The numerical examples in this decision serve to illustrate what should be obvious: A direct install program where the the utility or its contractor performs the installation of a measure should not be more cost-effective from a TRC perspective than a rebate program that provides a cash rebate to the customer up to the full cost of installation.
4. If the SPM cost components are inputted into the E3 calculator in a manner consistent with the SPM formula and definitions for the TRC test, then the scenario that DRA poses for a direct install program, where all costs associated with equipment/measure installations "disappear" from the TRC cost-side of the equation, should not occur.
5. When the SPM definition of transfer payments is properly implemented in the TRC test, participant costs are expected to be "non-negative." As discussed in this decision, there may be isolated instances where an energy efficiency measure actually costs less than the standard efficiency equipment it is replacing. However, one would not expect to see negative participant costs for the vast majority of measures, in or in the evaluation of program cost-effectiveness calculations where there is a mix of measures, if costs are inputted correctly into the E3 calculator and transfer payments are properly restricted consistent with the SPM definition.

Conclusions of Law:

1. As discussed in this decision, the treatment of costs and transfer payments in the TRC test has caused some anomalies and inaccuracies in the E3 model calculations. This treatment should be corrected in future applications of the TRC test and the E3 calculator.

2. Nothing in today's decision speaks to the design of programs, or is intended to cap incentives in any manner. Rather, today's determinations speak to the need to ensure that the program cost components and transfer payments are properly inputted into the E3 calculator (or other platforms for calculating and reporting cost-effectiveness results) consistent with the SPM formulas and definitions, as discussed in this decision.

Ordering Paragraphs:

15. As discussed in Ordering Paragraph 18 below, Joint Staff, interested parties, the utilities and their program advisory/peer review groups shall collaboratively explore ways in which to ensure that the Total Resource Cost (TRC) cost components are entered into the E3 calculator (or in other platforms for calculating and reporting cost-effectiveness results) in the future in a manner that is consistent with the Standard Practice Manual (SPM) definitions and formula for the TRC test. As discussed in this decision, all participant and non-participant costs shall be fully reflected in the TRC test with the limited exception of dollar benefits such as rebates or rate incentives (monthly bill credits) to the participating customer. Those dollar benefits shall be treated as a transfer payment and excluded on both the benefit and cost side of the TRC equation, as currently directed under the SPM. However, they will be included in the Program Administrator Costs (PAC) test. If the incentive is to offset a specific participant cost, as in a rebate-type incentive, the full customer cost (before the rebate) must be included in the TRC test as a participant cost. In situations where a direct install program does not bill or collect from the customer for any portion of the costs, then all costs should appear as program administrator costs in both the PAC and TRC tests.

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Excerpts from December 21, 2006 Compliance Ruling[11]

Pages 6-9:

As discussed in D.06-06-063, the TRC test is the measurement of net resource benefits from the perspective of all ratepayers, and is produced by combining the net benefits of the programs to participants and non-participants. The benefits are the costs of the supply-side resources avoided or deferred. The costs included in the TRC test encompass the costs of the measures/equipment installed and the costs incurred by the program administrator.[12]

The only costs that are to be excluded in the TRC test are those "incentives" that are to be considered and treated as transfer payments. Consistent with the SPM definitions, D.06-06-063 specifically directs that such incentives are restricted to include "only the dollar benefits such as rebates or rate incentive (monthly bill credits) to the participating customer."[13] The cancelling out of these dollar transfer payments on both the cost and benefits side of the TRC equation is illustrated in a numerical example in the decision, which is reproduced in Attachment 1 to this ruling.

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[11] *Administrative Law Judge's Ruling Addressing Compliance Filings Pursuant to D.06-06-063* in R.06-04-010, December 21, 2006.

[12] See D.06-06-063, p. 63. As noted by that decision, the TRC test looks at the "incremental" measure cost (not the full cost) when an energy-efficient appliance or measure promoted through the program represents a replacement "on burn out" of the participant's existing appliance/measure. For these replace or burn out installations, the measure cost is the additional (incremental) cost of the equipment/measure relative to the standard (less efficient) appliance/measure that would have been installed, without the financial incentive or outreach program. Full measure/equipment costs are only used in instances where the program causes the participant(s) to do what they would not have done anyway (or at least not in the near future, e.g., 5 years), such as replace a working air conditioner with a more efficient one.

[13] D.06-06-063, Ordering Paragraph 15.

Apparently, some of the utilities (for some programs) continue to treat a broader set of costs as transfer payments, thereby excluding them from the TRC calculation. These include cash payments to midstream and upstream (retailers and manufacturers) to buy-down measures with the expectation that the measures will be less expensive to customers to purchase at the stores. Energy Division also reports that direct install costs are not consistently being reported by the utilities as a program administrator cost in both the TRC and PAC test of cost-effectiveness.[14]

By this ruling, I direct the utilities to remove midstream and upstream incentives from the Incentives-Rebates category, which is the cost category that is treated as a transfer payment in the TRC test calculations using the E3 calculator. These are non-transfer payments based on the SPM methodology, the definitions in the policy rules for energy efficiency (Policy Rules) and the Commission's directives in D.06-06-063.[15] There appear to be other types of non-transfer

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[14] As discussed in D.06-06-063, under the PAC test, the program benefits are the same as the TRC test, but costs are defined differently to include all costs incurred by the program administrator (including financial incentives or rebates paid to anyone, including participants). The PAC test equation does not include any out-of-pocket costs incurred by participants (or on the benefit side of the equation, any benefits in the form of dollar rebates), therefore, under the PAC test no costs are excluded as "transfer payments" as they are in the TRC test in those limited instances discussed in D.06-06-063 and in the SPM.

[15] See Attachment 1. Payments to retailers and manufacturers are not the "dollar benefits such as rebates or rate incentive (monthly bill credits) to the participating customer" that are allowed to be treated as transfer payments in the TRC under the SPM. Moreover, the Policy Rules adopted by D.05-04-051 define "rebate", "customer" and "ratepayer" consistent with the SPM's use of these terms, as follows: (1) A rebate is a financial incentive paid to the customer in order to obtain a specific act, typically the installation of energy efficiency equipment., (2) A Customer is defined as any person or entity that pays an electric and/or gas bill to an investor-owned utility and that is the ultimate consumer of goods and services, including energy efficiency products, services or practices, and (3) Ratepayers are customers who pay for gas or electric service under regulated rates and conditions of service. See D.05-04-051, Appendix B – Common Energy Efficiency Terms and Definitions.

payments that are still being treated inappropriately as transfer payments in the E3 calculators. For example, Energy Division reports that for programs with some measures that are direct install (such as paying a contractor to install compact fluorescent lamps) to correct A/C refrigerant charge or to perform maintenance such as economizer tune-ups) some of the utilities continue to treat those measure program direct install costs as transfer payments. This treatment of non-transfer costs as transfer payments in the TRC test needs to be corrected.

Ordering Paragraph 17 of D.06-06-063 also requires the utilities to book costs as "administrator costs" in situations where a direct install program does not bill or collect from the customer for any portion of the costs, for either the TRC or PAC tests of cost-effectiveness. Staff recommends that a separate line item be created for this purpose in the E3 calculator, entitled "Direct Install Cost" rather than booking these costs under "Other Admin." I have no problem with this suggestion, as long as the costs booked under the new "Direct Install Cost" category are not treated as transfer payments in the TRC test calculations, and the utilities all book direct install costs consistently in this manner. Other types of non-transfer payments (such as midstream and upstream incentives) should be consistently booked to a cost category other than Incentives-Rebates, and for this purpose, the Other Admin cost category may be appropriate. I leave it to Energy Division, working with the E3 calculator consultants and the utilities to develop a consistent set of non-transfer payment cost categories for booking these costs in the E3 calculator, and for reporting purposes.[16]

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[16] In its reply comments on the utilities' compliance submittals, SCE indicates that expenses related to direct installation for low-income energy efficiency programs are booked under the cost category of "Program Incentives" rather than "Admin Costs" or "Other Costs." See SCE's Reply Comments On the Utilities' Compliance Submittals, September 29, 2006, filed in R.04-04-025 and A.05-06-004 et al. (incorporated into the record in this proceeding by reference), p. 4. Given the confusion that the term "incentives" has caused in recent years in the application of the TRC test, these costs should now be booked as "Direct Install Costs" or some existing category of costs that will not be treated as transfer payments (I have no preference) for low-income and non-low-income program alike for evaluation and reporting purposes. Staff should work with the utilities to develop a consistent manner of booking and reporting these costs across the low-income and non-low-income energy efficiency activities.

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Rather than requiring the utilities to go back to the E3 calculators and input files used for the 2006-2008 portfolio plans, and make the needed corrections to those input files and calculations, I believe it is much more productive to focus efforts on ensuring that the treatment of costs in the benefit/cost metrics produced for all future applications of the SPM tests of cost-effectiveness, especially the accomplishments reported for 2006-2008 portfolios in each Quarterly Report, are consistent with the directives of D.06-06-063. Therefore, the utilities should begin immediately to ensure that their E3 calculator engine and input/output files are revised to be consistent with those directives, as well as today's ruling on other E3 calculator issues. Beginning with the report for fourth quarter (due March 1, 2007) and until further notice, the utilities are required to post to a website their E3 calculator and input/output files with each Quarterly Report. The first posting (with the report for fourth quarter 2006) will include a summary of the changes made in response to today's ruling. Each posting shall also provide a clear description of how the "cumulative-to-date" benefit/cost metrics are derived from the posted E3 calculator information, as well as the other E3 calculator detail discussed under Section 5 below. The utilities shall notify the service list in this proceeding of the availability of this information with each quarterly posting.

(END OF ATTACHMENT 2)

ATTACHMENT 3
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EXCERPTS FROM D.07-09-043 ON
TREATMENT OF FREE RIDERS ON COST SIDE OF TRC TEST

Pages 149-156:

In the context of energy efficiency programs, free riders are those program participants who would have undertaken the energy efficiency activity in the absence of the program. The net-to-gross or "NTG" ratio is the total number of participants that are *not* free riders, e.g., a ratio of 0.80 indicates that 20% of the participants are free riders. There is no dispute among parties that the NTG ratio should be applied to the benefit side of the TRC equation to remove the resource savings attributable to free riders, since free riders do not add benefits to the program.[1] The SPM formulation explicitly defines the utility increased and decreased supply costs as net of free riders.[2]

However, there remains some disagreement among the parties about the impacts of free riders on the cost side of the TRC equation.

During the 2006-2008 portfolio planning process, Energy Division staff noticed that the utilities were also applying the NTG ratio to some components of TRC costs, and questioned the propriety of discounting any TRC costs in this manner. In their Phase 1 comments, the utilities and other parties point to a 1988 memo from members of the SPM working group that recommended a correction to adjust the "participant cost" component of the TRC by the NTG ratio. We refer to this memo, which is included in Attachment 9, as the "1988 SPM Correction Memo."

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[1] There is also no dispute that the NTG ratio should be applied to the benefits side of the PAC equation. And since the PAC test does not include any of costs incurred by the participating customer, no one proposes that PAC costs should be adjusted by the NTG to remove free rider costs. Therefore, today's decision focuses on how the NTG ratio should be applied to the cost-side of the TRC test.

[2] The utility avoided cost and utility increased cost terms, UAC and UIC respectively of the TRC, PAC and Ratepayer Impact Measure tests are defined to be based upon net energy and demand. See *2001 SPM*, pp. 13, 18 and 23 for description and page 17 for net energy and demand formulas.

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The 1988 SPM Correction Memo acknowledges that some portion of the TRC costs would have been incurred anyway (by free riders that would have purchased the measure on their own without the program being available), and therefore those costs should be excluded form the TRC calculation, as are the savings attributed to free riders on the benefit side. By ruling dated December 21, 2006, the assigned ALJ observed that there appeared to be consensus on this issue, since all parties agreed during the workshops that the 1988 SPM Correction Memo is the applicable approach.[3]

However, based on our further review of the Phase 1 record and consultation with Energy Division, we conclude that while there was general consensus that the 1988 SPM Correction Memo permitted the application of the free rider adjustment (NTG ratio) to the participant cost term of the TRC test, the correction formulation left unaddressed the appropriateness of adjusting for free riders (i.e., reducing) the "rebate" incentives term ("INC") paid to program participants.[4] Even the most recent version of the SPM does not clarify this issue, as the term "PCN" that appears in the TRC formula is simply defined as "Net Participant Costs," which does not indicate whether this means "net" of free riders, net of incentives, or both.

As indicated in Attachment 3, the joint summary documents filed in Phase 1 present the position of TURN, DRA and NRDC as recommending that only the free-rider "out of pocket costs" (net of any rebate incentives) be removed from the cost side of the equation and that the utility cost of rebate payments to free riders be retained in TRC costs. Based on the Attachment 3 summaries for the utilities, as well as the observations made by the ALJ in her December 2006 ruling, it appears that the utilities' position is different. In particular, it appears that they would remove from the cost side of the TRC equation essentially all utility costs incurred on behalf of free riders, whether

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[3] See 2006 ALJ Compliance Ruling, pp. 10-11.

[4] As discussed above, the SPM restricts this rebate incentive ("INC") term to include only dollar benefits such as rebates or rate incentives (monthly bill credits). See also our discussion of this term in D.06-06-063 with numerical examples at pp. 68-74. See also *2006 ALJ Compliance Ruling*, pp. 6-8.

these represent direct install program costs or dollar rebates paid when free riders install the measure or equipment themselves.[5]

We clarify today how the NTG ratio is to be applied to the cost-side of the TRC equation. As described in the SPM and reiterated in D.06-06-063, the intent of the TRC test of cost-effectiveness is to capture "*all* costs associated with the energy efficiency activity, whether paid for out-of-pocket by program participants or by non-participants through the authorized revenue requirement that fund the programs."[6] Ratepayers, through the energy efficiency revenue requirements collected to fund these programs, incur a cost for free rider participants that must not be ignored in the formulation of the TRC test. Because the simplified numerical examples we presented in D.06-06-063 involved only one participant, the issue of how to fold in free rider considerations on the cost side of the TRC equation was never explicitly addressed in that decision.

In fact, the only time we have discussed in a Commission decision how to apply the NTG ratio to costs associated with energy efficiency programs was in 1992, in the very limited context of the DSM bidding pilots undertaken in the early 1990s. In that context, our objective was to ensure that doing so would not create "an advantage to bidders over the utility program even when the projects have identical total costs and benefits."[7] Our determinations in D.92-12-050 were designed to achieve that specific objective, based on the record in that proceeding. However, in 1992 we did not consider how applying the NTG ratio to individual components of "participant costs" could impact the cost-effectiveness of different program delivery approaches (e.g., direct install

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[5] *Ibid.*, pp. 12-13. As discussed in D.06-06-063, the TRC will fail to capture all costs only in the limited instance when the dollar rebate incentive to a participating customer exceeds the participants' cost of purchasing and installing the measure. This "excess" rebate cost will not currently be captured by the TRC cost formulations, due to the treatment of these costs as a transfer payment in the SPM formulation. For this reason, we use the "dual test" of cost-effectiveness (PAC and TRC tests) in evaluating the cost-effectiveness of energy efficiency and utilize a weighted average of the PAC and TRC tests in calculating the PEB.

[6] D.06-06-063, *mimeo.*, p. 67.

[7] D.92-12-050, 47 CPUC 2d, p. 73.

versus rebate programs), that is, how such application could unduly advantage one approach over the other. It was not until the post-2005 portfolio plans were being developed and evaluated that Energy Division and its consultants brought these implications and questions concerning the 1998 SPM Correction Memo to our attention. Therefore, it is appropriate and important that we fully examine and resolve this issue in the context of post-2005 energy efficiency portfolio development and evaluation, and we do so today.

Without further clarification, the mathematical formulation of the 1988 SPM Correction Memo appears to create a free rider cost advantage to rebate programs relative to direct install programs, which should not occur if all else is equal. This is because this memo first displays the equation for TRC costs, which included at that time a "participant cost" (PC_t) term,[8] and then "suggest[s] renaming the participant cost as PCN to designate 'Participant cost—net'." (See Attachment 9.) That particular PC_t term has always been defined in the SPM as participant costs *before* receiving the dollar rebate incentive (cash rebate or bill credit) discussed above, which is represented as the "INC" term in SPM equations.[9] Therefore, the 1988 SPM Correction Memo could be interpreted to mean that the NTG ratio is applied to the participants' out-of-pocket costs (after receiving a rebate incentive) as well as to the rebate incentive paid, up to the full cost of the measure or device.

This result means, as currently formulated in that memo, removal from TRC costs of all revenue requirements associated with paying free riders a rebate incentive. However, an equivalent financial incentive to the customer offered under a direct install program would not be removed. In other words, if instead of offering a cash rebate to the customer, the utility directly installs that same measure and requires a customer co-payment (such that the out-of-pocket cost to the customer is the same under either approach), the financial incentive to free rider participants would be *included* in the costs. This is because all of the direct

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[8] *Standard Practice Manual: Economic Analysis of Demand-Side Management Programs* (*1987 SPM*), December 1987, p. 29.

[9] See *1987 SPM*, p. Appendix C, p. C-6; See also 2001 SPM at p. 11, footnote 3, and p. 32.

install costs would appear in the "program administrative cost" (PRC) term.[10] As indicated in Attachment 9, the 1988 SPM Correction Memo specifically prohibits applying the NTG ratio to the administrative cost component of TRC costs, since these are costs unrelated to participant expenditures.[11]

This means, all other things being equal, the 1988 SPM Correction Memo formulation would assign more costs to a direct install program than to a customer rebate program that is identical except for the delivery approach. As we stated in D.06-06-063, this type of inconsistency in cost-effectiveness results makes no sense, and is inconsistent with the intent of the TRC discussed above.[12] It is not even clear that this was the intent of the authors of the 1988 memo, since the formula did not actually present a full restatement of all the equations (benefit and cost side) of the TRC test with explicit NTG ratios applied.

To clarify how the NTG ratio should in fact be applied, a transfer incentive (INC) recapture quantity will be added to the TRC cost equation presented in the 1988 SPM Correction Memo as follows:

TRC Costs = PRC + NTG*PC + UIC + (1.0-NTG)*INC, where:

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[10] See D.06-06-063, pp. 71-72 and Ordering Paragraph 15. The utilities recently filed a joint petition to modify D.06-06-063 with regard to our orders that certain costs be included in the administrative cost component of the TRC, and not be considered transfer payments. (See *Joint Petition of PG&E, SDG&E, and SCE for Modification of D.06-06-*063, May 31, 2007 in R.04-04-025 and also served on the parties to this rulemaking.) We do not address this issue in today's decision. Instead, we focus on how the NTG should be applied to TRC cost components within the context of the SPM and our determinations to date on the application of the TRC and PAC tests to various energy efficiency delivery approaches. Until further order by the Commission, our determinations in D.06-06-063 and the 2006 ALJ Compliance Ruling on how costs are to be accounted for under these tests remain unchanged.

[11] The 1988 SPM Correction Memo utilizes the "UC" (for "utility administrative costs") term, which as been subsequently renamed "PRC" ("program administrator program costs") in more recent versions of the SPM. Therefore, we use the current PRC term in today's clarification.

[12] See D.06-06-063, p. 72.

PRC = program administrator program costs
PC = participant device costs (*before* INC is received)
UIC = (for fuel substitution programs) utility increase supply costs
NTG = net-to-gross ratio
INC = incentive costs, restricted to include only dollar benefits such as rebates or rate incentives (bill credits).

Adding this term to the TRC cost formulation will ensure that the removal of free rider costs does not also remove program costs that become ratepayer revenue requirements, consistent with the intent and purpose of this test.[13] In doing so, it also serves to ensure that direct install programs and customer rebate programs are treated consistently when the measure cost, the customer financial incentive, program administration costs and the NTG ratio are the same under the two delivery approaches.[14] This can be seen from the numerical examples presented in Attachment 9. This formulation is also fully consistent with the text description of the TRC test in the SPM, which recognizes that the "incentives" (INC) term will cancel from the benefit and cost side of the equation "*except for the differences in net and gross savings*."[15]

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[13] As we note in Section 10, the SPM defines the "perspective" of this test as one of evaluating ***program*** cost-effectiveness, that is, looking at "the total costs of the program, including both the participants' and the utility's costs." (2001 SPM, p. 18.) In its comments on the Proposed Decision, PG&E argues that we "erode" the concept of rebates by adding this clarification to the 1988 SPM Correction Memo. However, PG&E's argument hinges on its characterization of the TRC test as one "designed to count the total incremental cost of energy efficiency measures to society as a whole (considering ratepayers and utilities collectively)." (*Comments of PG&E on Proposed Decision*, August 29, 2007, p. 8.) This is not the definition or perspective presented for this test in the SPM or in any Commission decision.

[14] As discussed in D.06-06-063, there may be limited instances for program design purposes where the cash rebate to the customer exceeds the measure installation cost. Under these circumstances, the TRC results will be the same for both direct install and the rebate program (all other things being equal), given the transfer payment treatment of cash rebates in the SPM. However, the PAC test will favor the direct install program to reflect the lower revenue requirements associated with direct install under these circumstances. See D.06-06-063, p. 72.

[15] *2001 SPM*, p. 18. (emphasis added.)

Findings of Fact:

149. Because the simplified numerical examples presented in D.06-06-063 involved only one participant, the issue of how to fold in free rider considerations on the cost side of the TRC equation was never explicitly addressed.

150. The 1988 SPM Correction Memo formulation prohibits applying the NTG ratio to the administrative cost component of TRC costs, since these are costs unrelated to participant expenditures.

151. Parties to this proceeding disagree on whether the "rebate" incentives term ("INC") paid to free rider program participants should be adjusted by the NTG ratio.

152. As currently formulated in the 1988 SPM Correction Memo, the cost equation would remove from TRC costs all revenue requirements associated with paying free riders a rebate incentive. However, an equivalent financial incentive to the customer offered under a direct install program would not be removed.

153. All other things being equal, this means that the 1988 SPM Correction Memo formulation would assign more costs to a direct install program than to a customer rebate program that is identical except for the delivery approach.

154. Adding a transfer incentive (INC) recapture quantity to the 1988 SPM Correction Memo will ensure that the removal of free rider participant costs does not also remove program costs that become ratepayer revenue requirements.

155. Clarifying the formulation of TRC costs in this way serves to ensure that direct install programs and customer rebate programs are treated consistently when the measure cost, the customer financial incentive, program administrative costs and the NTG ratio are the same under the two delivery approaches.

156. This clarification is consistent with the text description of the TRC test in the SPM, which recognizes that the incentives (INC) term will cancel from the benefit and cost side of the equation "except for the differences in net and gross savings."

157. The utilities' recommendation to exclude rebates paid to free riders from TRC costs would increase the PEB under the adopted incentive mechanism 67 cents for each dollar paid to free riders, with zero dollars of added benefit to ratepayers. It is not reasonable to pay utility incentives on the dollars they pay to free riders.

Ordering Paragraphs:

13. The clarifications on how to apply net-to-gross adjustments for free riders presented in today's decision and illustrated numerically in Attachment 9 are adopted. In consultation with the assigned Administrative Law Judge, and as soon as practicable, Energy Division shall post the clarification to the Standard Practice Manual described in Section 10.2 as a "2007 Standard Performance Manual Clarification" memo on the Commission's website, together with the latest (2001) version of the Standard Performance Manual.

14. The utilities shall take immediate steps to ensure that all future cost-effectiveness calculations apply the free-rider adjustment ("net-to-gross ratio") as directed by this decision. This shall include accomplishments reported for the 2006-2008 energy efficiency portfolios, effective immediately.

15. Energy Division shall confer with Energy and Environmental Economics (E3) and other technical expertise, as staff deems appropriate, to explore whether the naming of input values in the E3 calculator should be modified to better capture the Standard Practice Manual cost definitions and calculation methods, including the net-to-gross ratio adjustments clarified by today's decision. As discussed in this decision, Energy Division may directly manage the development of the E3 calculator in the future, at its discretion.

Attachment 9 to D.07-09-043:

As discussed in today's decision, the total costs that free riders actually incur should be removed from the cost side of the Total Resource Cost (TRC) test. The total cost free riders actually incur is equal to the measure cost used for all participant ratepayers less any cost for measure installations reimbursed or paid by the program. Below, we present the formulas and sample calculations that accomplish this adjustment.

We also show sample calculations that use the formulation presented in 1998 Standard Practice Manual (SPM) Correction Memo, which is included in this attachment. This formulation suggests that the adjustment for free riders would be applied to participant costs *before* rebates are accounted for. We do not adopt this formulation for the reasons discussed in this decision.

In D.06-06-063, the numerical examples were single participant only since free rider adjustments were not addressed. Therefore, those examples did not need to break down the participant cost term (PC_t) that appears in the SPM into two components, namely, the "rebate" incentive versus the actual participant expense.[16] We do so in the following definitions and formulas in order to illustrate how the free rider adjustment should be applied.

A. Definitions and Formulas

The relevant definitions are:

Variable	Definition
Meas$	Full or incremental cost of measure per SPM definition (per measure installation)[17]

[16] *California Standard Practice Manuel: Economic Analysis of Demand-Side Programs and Projects*, October 2001.

[17] See D.05-04-051, Attachment 3, Rule IV.2 and D.06-06-063, p. 63, footnote 60 for a discussion of when "full" versus "incremental" cost of measure is used.

Admin$	Program administrative cost including all the administrative costs related to each measure (rebate processing, implementor/third party non-measure costs, etc.) as well as overall program administration costs (marketing, overhead, etc.) Administrative costs do not include any measure cost (Meas$).
Rebate$	Program rebate payment to ratepayer participant per SPM INC definition (per measure installation)
DirectI$	Cost paid by program for direct installation of measures at customer's premises (per measure installation). By definition, this value must be less than or equal to Meas$.
FreeRF	The fraction of participants which are free riders
NTG	The fraction of participants which are not free riders (1-FreeRF)
NP	Number of participants

Total net program cost = Total program cost – Total free riders' costs

Total net program cost = Program Administrator Costs + Program Participant Costs
- Total Free- Riders' costs
= Program Administrator Costs + Net Program Participant Costs

Where:

Total Free-Riders' costs = Free-Rider Costs net of any costs reimbursed by others.

Program Participant Costs=Participant Costs net of any costs reimbursed by others. [18]

Net Program Participant Costs = Program Participant Costs - Total Free-Riders' costs.

A direct installation ("direct install") program is any program delivery model by which the program directly (through staff action) or indirectly (through a contractual arrangement with a third party) arranges for measures to be either delivered to a participating customer for their installation or installed at a participating customer premises. This contrasts with rebate, mid-stream and up-stream program where the program may undertake a marketing activity to induce the customer to install measures and participate in the program, but the participant makes all arrangements for the purchase and installation of the measures through third parties with no contractual relationship with the program. For a direct install program the difference between Direct$ and Measure$ for a particular measure is the participant co-payment cost for the measure.

The definitions and formulas we present below are for rebate and direct install programs. However, the direct install formula may also be applicable to certain programs that the utilities call "mid-stream" activities if they deliver measures/services to the customer premises. The Air-conditioning system refrigerant charge programs are one such example. Under this "mid-stream" program, the utility contracts with verified service providers who then contract with heating, ventilation and air-conditioning (HVAC) contractors to go to customer premises and tune up their HVAC systems. Therefore, this "mid-stream" program would actually have a direct install cost (Direct$), equal to the amount paid to the verified service providers. Meas$ may exceed direct install cost if the participating customer is also charged a co-payment for the services.

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[18] This definition of program participant costs relates to the SPM "PC_t" term by subtracting from that term the program rebate payment ("INC") , any federal, state or local tax credit received ("TC_t") or any other costs reimbursed by others. See 2001 SPM at p.8 for the listed benefits to participants that would reduce the actual expense of participating in the program.

In contrast, the formulas for direct install or rebate programs presented below are not directly applicable to mid- or upstream programs that provide incentives to manufacturers to "buy down" the shelf price, or that provide incentives to wholesalers to stock high-efficiency equipment. This is because there is neither a rebate (Rebate$ or "INC" term as defined by the SPM) nor a direct install cost (Direct$) for measures installed at the participants' premises. Instead, as discussed in D.06-06-063, all program costs for these types of mid- or up-stream programs would be allocated fully to utility administrative costs (where the NTG adjustment does not apply). However, the participant cost under these programs is what the participant actually pays for the measure (the shelf price), to which the NTG ratio would apply.

For rebate program:[19]

Program Administrator Costs = Admin$ + NP * Rebate$
Program Participant Costs = NP * (Meas$ - Rebate$)
Total Free-Riders Costs = NP * FreeRF * (Meas$ - Rebate$)
= NP * (1-NTG) * (Meas$ - Rebate$)
Net Program Participant Costs = NP * (Meas$ - Rebate$) –
NP * (1-NTG) * (Meas$ - Rebate$)
= NP * NTG * (Meas$ - Rebate$)

Combining the above gives us:

Total net program cost

= Admin$ + NP*Rebate$ + NP*NTG*(Meas$ - Rebate$)
= Admin$ + NP*(Rebate$ + NTG* (Meas$ - Rebate$))

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[19] If Rebate$ exceeds Meas$ (the program pays rebates that exceed the cost of the measure) the total program TRC cost will be less than the program budget and associated revenue requirements. Because of the "transfer payment" formulation of the SPM, these "excess" rebate dollar amounts are treated as a revenue shift from all ratepayers to participating ratepayers and are not counted as a program cost. However, as we discuss in D.06-06-063, this is expected to be a rare circumstance.

The Rebate$ terms in the above formula do not fully cancel, but rather
a term remains that represents the rebates paid to free riders:

= Admin$ + NP*(NTG*Meas$ + (1-NTG)*Rebate$)

As illustrated below, this application of the NTG adjustment results in a consistent treatment of rebate and direct install programs, without eliminating the revenue requirement costs that ratepayers incur when free riders receive financial incentives under the program.

For direct install:[20]

Program Administrator Costs = Admin$ + NP * DirectI$
Program Participant Costs = NP * (Meas$ - DirectI$)
Freerider Costs = NP * FreeRF * (Meas$ - DirectI$)
= NP * (1-NTG) * (Meas$ - DirectI$)
Net Program Participant Costs = NP * (Meas$ - DirectI$) - NP * (1-NTG) * (Meas$ - DirectI$)
= NP * NTG * (Meas$ - DirectI$)

Combining the above gives us:

Total net program cost

= Admin$ + NP* DirectI$ + NP*NTG* (Meas$ - DirectI$)
= Admin$ + NP*(DirectI$ + NTG* (Meas$ - DirectI$))

The DirectI$ terms do not fully cancel, and we get the following:

= Admin$ + NP*(NTG*Meas$ + (1-NTG)* DirectI$)

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[20] Note here that the total TRC cost cannot be less than the program budget and associated revenue requirements as in the rebate program formulation, because the Direct$ cannot be more than Meas$ and the full Direct$ amount appears in the program administrator cost term. See D.06-06-063 at pp. 71-72.

In the case when the direct install program covers all measure costs (DirectI$ = Meas$)

= Admin$ + NP*DirectI$

B. Numerical Examples

Below, we provide numerical examples for rebate and direct install programs to illustrate how the NTG should be applied to TRC costs, based on the clarification adopted in today's decision. This clarification is contrasted with the formulation presented in the 1998 SPM Correction Memo (copy attached), which suggests that the NTG adjustment could be applied to participant costs before rebates are accounted for. Note that the TRC test results are only identical for rebate and direct install programs (all other things being equal) with the clarification we make today.

Participant Net Costs for the rebate program calculation are net of free riders, but reflect participant out-of-pocket costs prior to receiving the program rebate. Participant Net Costs for the direct install calculation are net of free riders and reflect the participant co-payment under the program. Program Net Costs are program costs (net of free rider adjustments) that do not appear in the Participant Net Cost terms. As discussed above, these numerical examples show the break out of individual components that are included in the SPM's "PC_t" term in order to illustrate how all revenue requirements are still captured when the NTG adjustment is properly applied.

1. Rebate Program

4	participants	$2,000	measure cost
1	free rider	$3,000	measure benefit per measure
0.75	NTG	$1,000	rebate per measure
		$100.0	admin cost per measure
	TRC benefits=	4 participants x 3,000 x 0.75 NTG	

1988 SPM Correction Memo:

Program Net Costs = 4 participants x 100 admin costs per measure
Participant Net Costs =4 participants x 2,000 measure cost x 0.75 NTG

Adopted Clarification:

Program Net Costs = 4 participants x 100 admin costs/measure + 4 participants x (1-0.75)x $1,000 rebate per measure
Participant Net Costs=4 participants x 2,000 measure cost x 0.75 NTG

Methodology	TRC Benefit	Program Net Costs	Participant Net Costs	TRC Cost	TRC
1988 SPM Correction Memo:	$9,000	$400	$6,000	$ 6,400	**1.41**
Adopted Clarification	$9,000	$1,400	$6,000	$7,400	**1.22**

2. Direct Install

4	participants	$2,000	measure cost
1	freerider	$3,000	measure benefit per measure
0.75	NTG	$1,000	Direct program paid cost per measure
		$100.0	admin cost per measure

TRC benefits=4 participants x 3,000 x 0.75 NTG
Program Net Costs= 4 participants x 100 admin costs/measure + 4 participants x 1,000 direct program paid cost/measure
Participant Net Costs = 4 participants x 0.75 NTG x (2,000 measure cost - 1,000 direct program paid cost per measure)

Methodology	TRC Benefit	Program Net Costs	Participant Net Costs	TRC Cost	TRC
Per D.06-06-063	$9,000	$4,400	$3,000	$7,400	**1.22**

ATTACHMENT 2

FILED
12-21-06
02:07 PM

To : Standard Practice Manual Distribution List October 7, 1988

From : Don Schultz

Re : Correction to Total Resource Cost test in Standard Practice Manual

Standard Practice Manual: Economic Analysis of Demand-Side Management Programs. published December 1987, CEC Publication Number P400-87-008

Pat Herman (BHC) and Eric Hirst (Oak Ridge National Laboratory) both noticed that the formula for calculating participant costs in the Total Resource Cost (TRC) test is wrong. The needed correction is explained below.

Specifically, the formula for calculating TRC costs includes three terms: utility administrative costs, participant device costs, and (for fuel substitution programs) utility increase supply costs (see page 29).

$$C(TRC) = \sum_{t+1}^{N} \frac{UC + PC + UIC}{(1+d)^{t-1}}$$

should be "t=1"

The Manual indicates that utility administrative and participant costs are not modified to reflect program attribution adjustments (i.e., the gross-to-net issue) while utility increased supply costs and program benefits are adjusted for attribution.

In order to retain symmetry with the benefit side of the equation, the participant cost (PC) component of the TRC costs should be corrected to reflect program attribution. To make this clear, we suggest renaming the participant cost as PCN to designate "Participant cost - net". The change would also carry through to the Levelized Cost (LCRC) test. Please note that this application of gross-to-net ratios applies only to the participant costs and not to the utility administrative costs.

The next time we publish the Standard Practice Manual we will correct this error. In the meantime, please mark up your manual on page 29 (definitions and formula), page 31 (example), page C-2 (summary of equations), and page C-6 (glossary).

This correction has been approved by all major California participants to the Standard Practice revision process. Future DSM cost-effectiveness filings by all parties in California should reflect this correction.

If you have any questions regarding this correction, please contact either Don Schwartz at the CEC (916-324-3488) or Don Schultz at the CPUC (916-324-5935).

(END OF ATTACHMENT 2)

(END ATTACHMENT 3)