

Overview

This document presents the responses to comments posted May 21, 2008 from interested parties regarding the preliminary DEER measure cost data and documentation previously released. In addition, this document includes a summary of numeric changes made as a result of these comments, and other changes in costs resulting from ongoing quality control and cost research. The 3 sections to this document are;

1. Responses to comments posted May 21, 2008 from interested parties
2. Numeric changes made in response to reviewer comments
3. Other numeric changes made from internal DEER team quality control and cost research

1. Responses to comments posted May 21, 2008 from interested parties

Comment set #1: Posted May 21, 2008 by Edward Mah. PG&E's Questions On Proposed 2008 DEER Update For Measure Cost Values

Below are PG&E's comments on the proposed measure costs for the 2008 DEER Update. Due to the short time frame provided for comments and due to the continuously changing data for the proposed measure costs, these comments are provided at a high summary level rather than at the measure by measure level.

Comment #1: Residential Upstream Screw-In CFLs. The same product groups are listed several times with different material costs. Is there a logical reason why this is the case?

Comment # 2: Missing costs for specialty bulbs. There is no pricing for specialty lamps which would change the average costs.

Comment # 3: Costs we are seeing in the program are different. We would suggest that \$1.15 would be the high end for spirals and \$.50 would be for spirals at the low end. This does not include any specialty products.

Comment # 4: Downstream Direct Install Lighting costs are too high. The costs are high. The prices typically appear to either carry a mark-up on them such as when a contractor would buy it wholesale and then resale it in a project or the prices are for retail and buying one or two pieces at a time. As an example, \$18 for a 1-lamp ballast and 1-lamp. The lamp itself is anywhere from 1.50 to \$3.00, the ballast is \$11.00 to \$15.00, so that seems reasonable in small quantities, not purchased in bulk as direct install contractors would. There is a 4-lamp T5HO at \$200.00 that's probably a spec grade product or has some hefty mark-up. Most of the Fluorescent Highbays are between \$100 and \$150 for the fixture and lamp. Labor on this is from \$75 to \$100 and up for more complicated installations.

ED/DEER Team Response to comments posted May 21, 2008 by Edward Mah.

Response #1: Regarding comment # 1, this comment is likely a misunderstanding on how to interpret the data:

For CFLs, the cost case ID for each 'product group' repeats based on

- The type of program delivery
- The packaging configuration for each cost case (single pack or multipack)

Action: We will revise the user guide for clarity on how to interpret the data

Response #2: This is a valid comment for upstream bulbs.

Action: We added costs for specialty lamps (dimmable and reflector) for the upstream programs.

Response #3: The costs that end use customers pay for spiral lamps provided through the upstream program range between \$1.15 to \$2.57 for single packs, and \$0.43 to \$1.85 for multipacks. We consider that this accurately reflects what customer pay for upstream lamps, and consistent with recommendations in the comment.

Action: none

Response #4: DEER costs are intended to represent a reasonable cost that an end use customer would pay for a device. As such, the costs presented for direct installation programs are based on customer invoice costs, before any program cost reduction is applied and represent a reasonable average based on a review of seven direct installation programs. Downstream program material and labor costs are based on a survey of medium and large lighting companies and align very well with data from lower cost direct installation program data. Per the examples cited, DEER lamp and ballast costs are \$1.93 and \$14.36, respectively, and are reasonable for volume installations and within range for the example cited. Regarding the comment on high bay installations, material costs for this equipment from DI ranges from \$141 to \$324, compared to \$206 for a similar device in DEER, while labor costs ranged from \$63 to \$135, vs. \$72 in the DEER model

Action: none

Comment set #2: Posted May 21, 2008 by Cynthia Mitchell regarding Overall, cost data for DEER 2008 Update for 2009-2011 Planning

We wish to reiterate and emphasize what the DEER team said to until they were blue in the face about the cost data (paraphrased): “The [EE measure] prices are what they are; the DEER team has not yet investigated why the prices are what they are. For instance, we know that there are significant differences in the cost structures of upstream to shelve prices, but why, we do not know.” And, “The DEER team collects raw cost data to show gross measure cost (GMC), without any reflection of incentive levels. DEER is very aware as to cost difference on a per lamp basis depending on whether the packaging is for a single, 4-, or 6- pkg of CFLs.”

TURN / DRA were very concerned with the discussion that some of the biggest lighting suppliers are getting much better deals than reported; contractors making huge windfall profits allowing retirement for life. We very much would like to see the policy direction suggested by the DEER team pursued to have evaluation move towards real prices paid to these programs to see if any windfall contractor earnings.

ED/DEER Team Response to comments posted May 21, 2008 by Cynthia Mitchell.

Response #1: The costs presented in the DEER database accurately reflect what customers pay for lighting equipment installed through various program delivery methods. We also recognize that cost vary between programs operating within a specific program delivery method, such as direct installation programs, and that margins on material may vary from contractor to contractor.

Action: The DEER team supports efforts to incorporate measure cost analysis within current and planned program cycle evaluations.

Comment set #3: Posted May 21, 2008 by Mark McNulty regarding T8 from T12 Measure cost

SDG&E reviewed the proposed DEER Team cost of retrofitting T12 F34 and F40 lamps to Premium T12. We believe that the work prepared by the DEER Team is reasonable for low volume retrofits. SDG&E's programs have seen turn-key costs significantly below the proposed installed measure costs. We think that the approach used does not capture supply efficiencies from high volume vendors/contractors and the significant installation efficiencies from per unit installation compensation versus hourly compensation that we observe in our programs. This difference could be in part from the adder that the DEER Team is using for direct install applications. SDG&E has provided invoice data, separately on 5/20, to the DEER Team for review. We believe that actual cost as supported by invoices should be used, when available, in the 2009-2011 Applications. In this case the actual cost data is available and it is significantly lower (more than 50%) than the estimates developed by the DEER Team. We are very concerned that using estimated values in place of actual market based data will have a significant impact on a program's TRC cost-effectiveness values and provide false signals to our program planners in the development of their program plans.

ED/DEER Team Response to comments posted May 21, 2008 by Mark McNulty.

Response #1: The DEER team has reviewed an invoice example provided subsequent to the May 19th comments webinar and determined that this invoice likely represents the contractor invoice submitted to the IOU for payment on a prescriptive rebate amount, but not the invoice submitted to the customer for the actual installation charged by the contractor for the work. To be of most use, we would request the invoice from the contractor to the customer for this project. Additional discussions indicated that a lighting company in San Diego was participating in the program and offering lighting retrofits at no cost to the customer. A review of the vendors literature indicates that their projects allows "customers to implement energy saving projects with "Zero Capital Outlay" where "your monthly energy savings will be greater than your monthly payments, resulting in a positive cash flow starting day 1". This example indicates that customers do pay for the installation, though no specific cost guidance was available from this source.

Action: The DEER team will expand cost research into direct installation programs operating in SDG&E and SCE service territories. However, none of the data provided by the commenter indicated that the DEER costs presented are unreasonable and no revisions will be made at this time.

Comment #4: Posted May 21, 2008 by Gene Thomas as ‘Ecology Action Comments on DEER Draft Costs’

Ecology Action appreciates the hard work of the DEER team in researching and developing the draft DEER 2008 measure costs. In this effort Ecology Action was pleased to provide the DEER team with detailed cost data from our RightLights program, including specific manufacturer part numbers, contractor markups and labor rates, details on related items like reflectors and lenses, and labor factors for each sub-task. Our comments herein reflect our longstanding commitment to tightly control equipment and installation labor costs in order to preserve incentive budgets and maximize installed energy savings.

The draft DEER costs provide a good starting point in many respects for IOU planners and program implementers. In the limited amount of time since its release, however, we have identified some issues that give us pause about whether it should be required to be used on a default basis in every case for 2009-11 program planning.

In the webinar several IOU and implementer participants voiced their concern about being required to use DEER 2008 costs for measures that were higher than those they had already identified or contracted for. Others noted that some of the stated values – both equipment costs and labor time factors – appeared to be somewhat inflated based on their experience. Ecology Action shares these concerns, especially with respect to small commercial lighting and several commercial refrigeration measures.

For example, for Auto Door Closers on Walk-In Coolers and Freezers the draft DEER document shows \$359.69 in materials and \$128.88 in labor for an installed total of \$488.57 per door. Ecology Action installs the identical measure in our RightLights program for \$150 per door (\$110 materials plus \$40 labor). The draft DEER costs for that measure are more than **triple** our current costs.

If IOUs or implementers are required to use a cost of, say, \$150 for a measure that they know they can install for \$100 and that measure is eligible for a 100% direct install incentive, that means the available incentive budget for that measure is substantially reduced. If the program depends on that measure for much of its energy savings, for planning purposes in their E3 they will not be able to show sufficient installs to achieve the program goals unless the incentive budget is artificially revised upward. In our Door Closer example above, we would not want to be forced to use the erroneous draft DEER value for 09-11 planning since we would have to triple our incentive budget for that measure as it receives a 100% incentive.

In addition, forcing implementers to use a knowingly higher EEM cost could tend to “peg” the market price of that EEM at the higher value during 2009-11 implementation. It would be a shame if hard-won achievements in cost containment – whether from IOU or implementer efforts – were diluted subsequently due to a “self-fulfilling prophecy” of mandated DEER planning costs.

We are also concerned that the Direct Install “premium” over ESCO costs as shown in the webinar may be overstated and unintentionally serve as a price inflator. Our material cost and labor numbers tend to follow their ESCO counterparts quite closely despite the fact that RightLights is a DI program. That’s a good thing, as it indicates effective supply

chain management and cost containment. It's not a good thing if PG&E cannot reflect that fact in 09-11 planning, but instead is forced to use higher-than-real values that could potentially jeopardize those achievements.

Ecology Action believes that the CPUC should look closely at the cost side of the EEM equation and continue to move the DEER team's good work forward. We believe that the draft DEER 2008 costs should serve as the basis for 2009-11 planning, except in those cases where IOU, implementer or Partnership managers have specifically identified or arranged for measure costs that are appreciably less than the draft DEER values. In those cases we believe that the correct, lower values should be used and – to the extent practical – steps should be taken to help increase the availability of those lower prices to other stakeholders.

ED/DEER Team Response to comments posted May 21, 2008 by Gene Thomas.

Response #1: This is a valid comment for refrigeration measures.

Action: Upon discussion with Gene and through interviews with additional installation contractors, we have revised our material and labor estimates for select measures to be more consistent with industry standards. The changes are highlighted in yellow in the tab labeled: NR - Commercial Refrigeration.

Response #2: This is a valid comment for lighting material measure costs. As noted above and in the response the TURN/DRA comment, the DEER team recognizes that cost vary between programs. The DEER team will recommend that direct installation contractors be provided the option to use either the downstream or direct installation measure costs in their program planning.

Action: In supporting DEER user documentation, we clarified that direct implementation contractors can use the lower downstream program costs, pending a review that their cost structure supports this model.

Response #3: This is a valid comment for lighting labor measure costs.

Action: Based on discussions with Ecology Action and a review of our labor model we adjusted downward the labor content (i.e. manhours to complete an installation) of select linear fluorescent retrofits.

2. Numeric changes made in response to reviewer comments

The following revisions to cost estimates were made based on a review of comments provided May 21, 2008, and subsequent discussion with commenting staff.

- During the course of reviewing linear fluorescent labor requirements with a commenter, it was agreed that the man hours for retrofit were overstated by roughly 20%. These values were adjusted and the new man hours for retrofit values are highlighted in yellow on the tab labeled: NR-Linear Fluorescent.
- Furthermore, the commenter noted that linear fluorescent retrofit may include a reflector. Measures in which the cost case includes a reflector were created. Each of the cost case IDs in the most recent measure list were duplicated, with a reflector identifier added to the ID and Description. Material and labor costs were developed for these new cost cases, and incremental costs were computed. These new values are highlighted in yellow on the tab labeled: NR-Linear Fluorescent.
- Upon discussion with Gene Thomas and through interviews with additional installation contractors, we have revised our material and labor estimates for select measures to be more consistent with industry standards. The changes are highlighted in yellow in the tab labeled: NR - Commercial Refrigeration.

3. Other numeric changes made from internal DEER Team quality control and Costs research

The following revisions to cost estimates were made based on further review of cost calculations that took place after the DEER Costs comment/review on May 21, 2008.

- During the course of reviewing linear fluorescent material costs with a commenter, a mathematical error was identified that caused material costs to be overstated by 7.5% on all linear fluorescent fixture configurations. This error was corrected and new material cost values for linear fluorescent fixtures are highlighted in yellow on the tab labeled: NR-Linear Fluorescent.
- It was discovered that a small number of outliers were being incorrectly accounted for in our residential window regression model. These discrepancies were noted and removed. The revised regression model outputs have been highlighted in the tab labeled: Res – Windows.
- A slight formatting error caused measures to be double counted in the incremental cost reporting tables of various HVAC technologies. These rows have been removed accordingly from the tab labeled: NR-Other Central Plant, NR-Boilers, and NR-Chillers.
- Upon receiving additional information from our cost sources, we have adjusted the material costs for various HVAC measures. These changes are highlighted in yellow in the tabs labeled: Res – HVAC & NR - Split & Packaged AC.
- Following further interviews with retailers concerning their appliance installation costs, we have adjusted the man hour estimates to be more consistent with industry standards. These changes are highlighted in yellow in the tab labeled: Res – Appliances.
- Cost for spiral CFLs greater than 27 Watts in the upstream and downstream delivery strategies were increased to reflect a greater than linear relationship between wattage and cost at these larger wattages. These new values are highlighted in yellow on the tab labeled “Res - Screw-in CFL”.
- Globe shaped CFLs (cost case) and globe shaped incandescents (base case) were added to the residential and non-residential datasets. These new values are highlighted in yellow on the tab labeled “Res - Screw-in CFL”.
- CFL (cost case) and incandescent (base case) reflector lamps were added to the residential dataset (“Res - Screw-in CFL”). These costs were already in the non-residential dataset.
- Matching cost and base case costs for table lamps and torchieres was not possible because of the large range of costs and absence of direct comparisons in the available cost research. Therefore, cost case fixtures were not changed, while base case fixture costs were adjusted to reflect the cost of the respective cost case fixture, less the difference between the cost of the lamp in cost case fixture and cost of the lamp in the base case fixture (e.g. the cost difference between a 32W CFL and a 120W

incandescent lamp was added to the cost of the 32W CFL table lamp fixture to determine the cost of the 120W table lamp fixture). All fixture costs can be found in the "Res - CFL fixtures" tab; updated costs are highlighted in yellow.

- Upon review of the most recent measure list (May 28, 2008), four additional cost cases were included to match the energy team's most recent measure list (May 28, 2008): 48in2g32wT8RSRE127w, 48in2g32wT8ISNE159w, 48in2g32wT8ISRE152w, and 48in2g32wT8ISNE189w. Material and labor costs were developed for these new cost cases, and incremental costs were computed. These new values are highlighted in yellow on the tab labeled: NR-Linear Fluorescent.