



## memo

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Subject: 2006-2009 Upstream Lighting Program CFLs Installed in 2010

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### Overview

The purpose of this memorandum is to update the 2010 IOU-rebated CFL unit quantities to include CFLs rebated during the 2006-2008 and 2009 Upstream Lighting Program that were installed in 2010. The ED has asked KEMA to provide a method for calculating these savings.

For Residential installations, the method and results for determining the quantity of CFLs that fall into this category are similar to the method and results in the Final Evaluation Report: Upstream Lighting Program, Volume 1<sup>1</sup> (hereafter referenced as "the 06-08 ULP Report"). The revised methodology takes into account factors that the initial methodology did not (because the prior method was concerned with 2006-2008 installations only, showed 2009 results for illustration purposes, and did not show results for 2010). The results of this analysis do not indicate which CFLs in particular were installed in 2010. We therefore propose to use program averages for ex-post savings parameters to determine program-level savings. Furthermore, since the cost associated with rebating these CFLs have already been accounted for in the 2006-2008 and 2009 ERTs, there is no additional program cost associated with these CFLs.

The analysis of Nonresidential installations for the 2006-08 evaluation did not include an accounting model of purchases and installations in each year like that used for the residential analysis. Nonresidential purchases are about 5% of total program shipments. Nonresidential applications have higher annual hours of use and therefore shorter EUL (measured in years). Due to the shorter EUL and the lack of directly transferable analysis, it was our recommendation that the IOUs receive full credit in the 2009 ERT for the Nonresidential CFLs that were deemed not installed through 2008. The 2009 ERT assumed program average Nonresidential UES values for Nonresidential CFLs for each IOU. For the current analysis, our recommendation remains the same and the IOUs should receive full credit in 2010 for all Nonresidential CFLs that were deemed not installed through 2009.

The remainder of this memo describes the residential methodology.

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<sup>1</sup> KEMA, Inc., 2010.

Confidential

## Quantity of 2006-2009 CFLs Installed in 2010, by IOU

### **Method**

The method used to determine the quantity of 2006-2009 CFLs that were installed in subsequent years is similar to the method presented in Section 8.4 of the 06-08 ULP Report. However, some different assumptions and additional steps were needed when applying this modeling method to differentiate among 2006-2009 CFLs and 2010 CFLs, of CFLs installed in 2010.

1. **Non-program sales.** For the 2006-08 analysis, our model assumed a certain ratio of all CFL sales to program CFLs, based on studies from 2008. The ratio of all CFL sales to IOU-discounted CFL sales was 1.34 for the IOU territories as a whole, and this factor was applied to our program sales data to determine overall CFL sales. For 2009, the program shipments were much smaller than in the preceding years. As a result it did not make sense to assume that the ratio of total to program sales was the same as for 2006-08. Instead, we assumed that the absolute level of non-program bulbs sold was the same in 2009 as in 2008. This assumption was included in the analysis provided in the 2006-08 evaluation report, and is carried through in this analysis for 2010. Therefore, the absolute level of non-program bulbs sold in 2010 was the same as in 2009.
2. **Separating 2010 from 2006-09 shipments in total 2010 purchases.** For the 2006-08 analysis, we tracked installations by purchase year but not by shipment year. Any discounted bulb purchased in 2006-08 was assumed to be a 2006-08 program bulb. For the bulbs purchased in 2009, we needed to separate purchases of 2009 shipments from purchases of bulbs remaining on the shelf from 2008. The numbers remaining from 2008 were part of an interim calculation in the original analysis. For the 2009 analysis we pulled them out explicitly. We used the same method for separating purchases of 2010 shipments from purchases of bulbs remaining on the shelf from 2009.
3. **Separating 2010 from 2006-09 shipments in 2010 installations.** The 2006-08 analysis assumes that bulbs are installed in the order purchased, so that the earliest purchases remaining in storage are the next ones installed. We retained this assumption for the 2009 and 2010 analysis. However, we did not assume that bulbs purchased in the current year from prior year "leftover" shipments are installed before those purchased from current-year shipments. (As noted, this was not an issue for the 2006-08 analysis.) Instead, we assumed that the 2009 and installation rate is the same for all 2009 purchases, whether they were from leftover 2008 shipments or from 2009 shipments. This means that the percent of 1<sup>st</sup>-year installations that were leftover shipments is the same as the percent of 2009 purchases that were leftover shipments. We used the same method for separating 2010 shipments from 2006-09 shipments in 2010 installations.

This assumption relies on a key assumption that we have maintained throughout our modeling: consumers cannot differentiate among 2008, 2009, and 2010 IOU-discounted CFLs (or any

other consecutive years). While there may be slight variations in packaging, branding, or the products themselves, we see no reason to believe that a consumer would necessarily show preference based on the year the IOU provided the discount.

4. **2006-08 purchase flows.** The 2006-08 analysis developed estimates of total bulbs purchased and of program bulbs purchased, installed, added to storage, and replacing failed and broken bulbs in each year. The analysis further broke these quantities into numbers installed and stored each year by year of acquisition, for both all bulbs and for discounted bulbs only. For this breakdown, the intended principle of oldest bulbs being installed first did not get fully implemented. The 2006-08 report (Table 71, pg. 124) indicated some bulbs from a prior year still being in storage while newer bulbs were installed. For the 2009 analysis this sequence of installations was corrected. The correction made only a very small difference to the cumulative number installed by the end of 2008, the key installation result for the 2006-08 program. However, the correction was necessary to develop reasonable estimates for 2009, and is retained in the analysis for 2010.
5. **Extending the analysis.** With the revisions indicated above, the methodology essentially extended the 2006-08 and 2006-09 analysis to model all years 2006-2010. We then isolated the 2010 purchases that were leftover from 2009 shipments, as indicated at point 3 above.

**Results<sup>2</sup>**

The results, by IOU, are presented below. The number of 2006-2009 CFLs installed in 2010 is highlighted in yellow in each of the tables. Variation among IOUs in the number of CFLs installed in 2010 is to be expected, as variations in storage, remaining potential, available CFLs, and 2010 program CFLs affect the rate at which 2006-2009 CFLs become installed.

For all IOUs, the large majority of bulbs installed in 2010 are taken from storage. This is based on the principle that stored bulbs are exhausted (except for the small fraction that will never be installed) before newly purchased bulbs are installed. Except for the approximately 3% of CFLs that reportedly never get installed, all 2006-2008 and all or nearly all 2009 CFLs are installed by the end of 2010.

As shown for Pacific Gas and Electric, approximately 7.1 million 2006-09 CFLs were installed in 2010.

<b>PG&amp;E – CFLs Installed in 2010 (millions)</b>	<b>All 06-10 pgm bulbs</b>	<b>06-09 pgm bulbs only</b>
CFLs Shipped (Total)	70.2	59.0
Acquired in 2010	TBD	0.7
Installed in 2010 from storage	7.1	7.1
Installed in 2010 from 2010 acquisitions	TBD	0.0
Installed in 2010 from storage & 10 acquisitions	TBD	7.1

As shown for Southern California Edison, approximately 4.4 million 2006-09 CFLs were installed in 2010.

<b>SCE – CFLs Installed in 2010 (millions)</b>	<b>All 06-10 pgm bulbs</b>	<b>06-09 pgm bulbs only</b>
CFLs Shipped (Total)	52.2	39.3
Acquired in 2010	TBD	0.5
Installed in 2010 from storage	4.2	4.2
Installed in 2010 from 2010 acquisitions	TBD	0.2
Installed in 2010 from storage & 10 acquisitions	TBD	4.4

As shown San Diego Gas and Electric, approximately 1.7 million 2006-09 CFLs were installed in 2010.

<b>SDG&amp;E – CFLs Installed in 2010 (millions)</b>	<b>All 06-10 pgm bulbs</b>	<b>06-09 pgm bulbs only</b>
CFLs Shipped (Total)	10.9	9.3
Acquired in 2010	TBD	0.2
Installed in 2010 from storage	1.7	1.7
Installed in 2010 from 2010 acquisitions	TBD	0.0
Installed in 2010 from storage & 10 acquisitions	TBD	1.7

<sup>2</sup> NOTE: 2010 conditions and results were based upon evaluation data collected for the 2006-2008 Upstream Lighting Program. These conditions and results are meant to inform estimates for 2006-2009 IOU-rebated CFLs installed in 2010 and do not reflect final evaluation results for 2010 (which will come out of the 2010-12 Evaluation).