Work Paper SCE17LG133

**Revision 1**

**Short Form**

**Southern California Edison**

**LED A-Lamp**

**Introduction**

This short form workpaper (WP) documents the values adopted from PGE’s WP entitled “PGECOLTG165\_R5\_LED\_A-Lamps”. SCE adopts all the values in PGECOLTG165 R5 - LED A-Lamps, with the following exceptions.

1. Dwelling Areas and Common Areas were added for the Multifamily Dwelling Area (MFm) and Residential Mobile Home - Double-Wide (DMo). Dwelling Areas and Common Areas used operating hours of 541 hours and 6412 hours per year, respectively.
2. For the Common Area scenarios, the Use SubCategory was modified to InCommon.
3. MultiFamily Dwelling Area (MFm) uses the same 541 operating hours as the Residential Single Family (SFm).
4. Three different calculation templates for Res, Common/Dwelling, and Non-Res were developed using SCE’s 2017 calculation template. The different approaches have independent solution codes and cost-effectiveness assumptions associated with them to avoid confusion. The NTG values and other cost effectiveness assumptions were chosen according to the delivery method.

# Document Revision History

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| --- | --- | --- | --- |
| **Rev** | **Date** | **Author** | **Summary of Changes** |
| 0 | 01/20/2017 | Ramon Yll-Prous (TRC) | 1. Calculation templates were developed based on PGE’s template “PGECOLTG165\_R3-9-11-2015-”. |
| 1 | 6/30/2017 | Lake Casco (TRC) | The following updates were made based on CPUC Lighting dispositions provided on March 1st and May 26th of 2017.   1. Calculation templates were developed based on PGE’s template “PGECOLTG165\_R5”. Calculations and costs were updated based on new methodology from the disposition. |

**Measure Summary**

Table 1: Measure Summary Table

| **Section** | **Value** |
| --- | --- |
| **Summary & Purpose** | This short form workpaper documents ex-ante load impacts and cost-effectiveness values for LED A-Lamp Lighting. The base wattage and lighting savings values are from PG&E’s LED workpaper PGECOLTG165 R5 - LED A-Lamps.  The base and measure case wattages of the A-lamps are from the CPUC Screw in Lighting Disposition from May 26, 2017. Base case wattages are from EISA Bins, while measure case wattages are calculated using the new efficiency method from the disposition. |
| **1.1 Measure & Baseline** | Please refer to Attachment #1 Calculation Templates for the list of measure solution codes and baseline condition. |
| **1.2 Technical Description** |  |
| **Measures** | No Difference except SCE added Common and Dwelling Areas. |
| **Code for All Measures** | No Difference |
| **Requirements** | Please refer to PGECOLTG165 R5 workpaper for further details.   * The customer must be a residential or commercial SCE electric customer.   Note: Other program level restrictions and guidelines exist for this work paper. Please see the **Programs Restrictions and Guidelines** section of PGECOLTG165 R5 - LED A-Lamp for more details.  For SCE, CEC Specification v3.0 Lamps are implemented via Upstream Lighting Programs and all other programs use the Energy Star 2.0 Specification Lamps. |
| **1.3 Installation Type and Delivery Mechanisms** |  |
| **Installation Type** | No Difference |
| **Delivery Mechanisms** | Residential Mobile Home - Double-Wide, Residential Multi-family for Common and Dwelling area scenario:  Direct Install  Down-Stream Incentive - Deemed  Residential Single Family:  Up-Stream Incentive  Non-Residential:  Direct Install  Down-Stream Incentive - Deemed  Mid-Stream Incentive  Up-Stream Incentive  Partnerships Down-Stream Incentive - Deemed |
| **1.4.1 DEER Data** |  |
| **Net-Gross-Ratio** | NonRes-sAll-mLEDARefl for Non-Residential Building Types.  Res-sAll-mLEDARefl for Single Family Upstream Program.  Res-sAll-mLEDARefl for Dwelling and Common Area scenarios. |
| **Effective and Remaining Useful Life** | ILtg-Res-LED-20000hr  ILtg-Com-LED-20000hr |
| **Section 2. Calculation Methodology** |  |
| **Energy savings/Peak Demand Reduction – All Measures** | This workpaper used the EISA Bin method instead of the WRR method for savings calculation. This methodology was provided by the CPUC in the May 26, 2017 Screw in Lamp Lighting Disposition. The operating hours and interactive effects for Commercial were taken from DEER 2016 data. The operating hours and interactive effects for Residential were taken from DEER 2016. These interactive effects and operating hours were used to calculate energy savings for SCE specific climate zones. |
| **Section 3. Load Shapes** | No Difference |
| **Section 4. Costs** |  |
| **Section 4.1 Base and Measure Costs** | Please refer to Attachment #1 Calculation Templates for detailed baseline and measure costs. |

**Savings and Calculation Methodology**

Savings impacts were revised based on the changes in the space types and corresponding operating hours. Below table shows the space type classifications, schedule, and operating hours:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sector** | **Building Type** | **Space Type** | **Schedule** | **Operating Hours** |
| Residential | Residential Mobile Home - Double-Wide and Residential Multi-family | Common Area | Interior Common - CFL - Res DMO & MFM (6142) | 6142 |
| Dwelling Area | Interior General - CFL Other - Res (541) | 541 |
| Residential Single Family | | Interior General - CFL Other - Res (541) | 541 |
| Non-Residential | All Commercial Building Types | | Interior General - CFL Other - Com (Varies) | Varies |

The schedules and operating hours noted above were found in the READI 2.4.7.

Above space type with corresponding operating hours were used in the calculation template to calculate energy impacts. The overall calculation methodology has not changed from the methodology found in PGECOLTG165 R5 - LED A-Lamp.

**Attachments**

1. SCE17LG133.1 A1 – Calculation Templates\_Final.zip