Work Paper SCE17LG129

**Revision 1**

**Short Form**

**Southern California Edison**

**LED CANDELABRA Replacements**

**Introduction**

This short form workpaper documents (WP) the values adopted from PGE’s WP entitled “PGECOLTG163 R7 LED Candelabra”. SCE adopts all the values in PGECOLTG163 R7 LED Candelabra, 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 consistent with 2015 Lighting Retrofit Guidance [Attachment 2].
2. For the Common Area scenario, Measure IDs were selected using the March 1, 2018 Screw-In Lamp disposition (READi 2.4.7) and is matched to appropriate measure watts.
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 are developed using SCE’s 2018 calculation template.

# Document Revision History

|  |  |  |  |
| --- | --- | --- | --- |
| **Rev** | **Date** | **Author** | **Summary of Changes** |
| 0 | 12/22/16 | Arvind Subramanya (TRC) | 1. Calculation templates were developed based on PGE’s template “PGECOLTG163 R7-9-11-2015F ” incorporating the changes described above. |
| 1 | 5/1/2018 | Lake Casco (TRC) | The following updates were made based on the CPUC 2018 Screw-In Lamp Savings Method Disposition dated March 1, 2018.   1. Calculation templates were developed based on PGE’s template “PGECOLTG163\_R7-9-11-2015F”. Calculations and costs were updated based on new WRR values from the disposition. 2. Updated NTG to be “All-Ltg-ScrwInLED” based on “2018ScrewInLampSavingsMethods-1March2018” disposition |

**Measure Differences Summary**

Table 1: Measure Differences Summary Table

| **Section** | **Value** |
| --- | --- |
| **Summary & Purpose** | This short form workpaper documents ex-ante load impacts and cost-effectiveness values for LED CANDELABRA Lighting. The base wattage and lighting savings values are from PG&E’s LED workpaper PGECOLTG163 R7 - LED Candelabra. Only differences are explained here. |
| **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 |
| **Code for All Measures** | No difference |
| **Requirements** | 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 PGECOLTG163 R7 - LED Candelabra for more details.  For SCE, the residential upstream program follows the CEC specification and all other programs follow the Energy Star 2.0 specifications. |
| **1.3 Installation Type and Delivery Mechanisms** |  |
| **Installation Type** | No difference |
| **Delivery Mechanisms** | Residential Mobile Home - Double-Wide and Residential Multi-family:  Direct Install  Down-Stream Incentive - Deemed  Residential Single Family:  Up-Stream Incentive  Direct Install  Down-Stream Incentive - Deemed  Non-Residential:  Direct Install  Down-Stream Incentive - Deemed  Mid-Stream Incentive  Up-Stream Incentive |
| **1.4.1 DEER Data** |  |
| **Net-Gross-Ratio** | All-Ltg-ScrwInLED |
| **Effective and Remaining Useful Life** | No difference |
| **Section 2. Calculation Methodology** |  |
| **Energy savings/Peak Demand Reduction – All Measures** | See description below |
| **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 PGECOLTG163 R7 - LED Candelabra.

**Savings Calculation Workbook**

1. SCE17LG129.1 A1 – Calculation Template\_Final.zip
2. SCE17LG129.1 A2 2015\_Lighting\_Retrofit\_Guidance\_memo\_FINAL (emailed 2015-01-27)
3. **SCE17LG129.1 A3 2018ScrewInLampSavingsMethods-1March2018**