Work Paper SCE17LG127

**Revision 2**

**Short Form**

**Southern California Edison**

**LED PAR Lamps**

**Introduction**

This short form workpaper documents (WP) the values adopted from PGE’s WP entitled “PGECOLTG141 R9 - LED PAR Lamps”. SCE adopts all the values in PGECOLTG141 R9 - LED PAR 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 consistent with 2015 Lighting Retrofit Guidance [Attachment 2].
2. For the Common Area scenario, proper Measure ID’s were chosen 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 were developed using SCE’s 2017 calculation template.

# Document Revision History

|  |  |  |  |
| --- | --- | --- | --- |
| **Rev** | **Date** | **Author** | **Summary of Changes** |
| 0 | 12/23/16 | Arvind Subramanya (TRC) | 1. Calculation templates were developed based on PGE’s template “PGECOLTG141\_R7-9-11-2015F” incorporating the changes described above. |
| 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 “PGECOLTG141\_R8-9-11-2015F”. Calculations and costs were updated based on new WRR values from the disposition. 2. Update NTG Values per READi PEAR version 2.4.7 NTG table. |
| 2 | 5/1/2018 | Kara Vega (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 “PGECOLTG141\_R9-9-11-2015F”. Calculations and costs were updated based on new WRR values from the disposition. 2. Update NTG ID to” All-Ltg-ScrwInLED” = 0.91. |

**Measure Differences Summary**

Table : Measure Differences Summary Table

| **Section** | **Value** |
| --- | --- |
| **Summary & Purpose** | This short form workpaper documents ex-ante load impacts and cost-effectiveness values for LED PAR Lighting. The base wattage and lighting savings values are from PG&E’s LED workpaper PGECOLTG141 R9 - LED PAR Lamps. 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 PGECOLTG141 R9 - LED PAR 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  Partnership Direct Install and Down Stream Deemed. |
| **1.4.1 DEER Data** |  |
| **Net-Gross-Ratio** | NTG ID (All-Ltg-ScrwInLED) taken from 2018 Screw-In Lamp Savings Method Disposition dated March 1, 2018.  NTGR = 0.91, Sector: Any |
| **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 PGECOLTG141 R9 - LED PAR Lamps.

**Attachments**

1. SCE17LG127.2 A1 – Calculation Template\_Final.zip
2. SCE17LG127.2 A2 2015\_Lighting\_Retrofit\_Guidance\_memo\_FINAL (emailed 2015-01-27)
3. SCE17LG127.2 A3 2018ScrewInLampSavingsMethods-1March2018