Short Form Work Paper WPSDGENRLG0107

**Revision 0.1**

**San Diego Gas & Electric**

**Energy Efficiency Engineering**

**LED Recessed Downlight Retrofit Kit**

**May 15, 2018**

# SDG&E Recessed Downlight Retrofit Kit

## Introduction

This short form workpaper (WP) documents the updates addressing the March 1, 2018 screw-in lamp savings methods lighting disposition issued by CPUC Energy Division. The submission includes creating new measure codes (Implementations IDs) that are based on CPUC Energy Division guidance for LED reflectors baseline of 10% CFL, 40% LED and 50% incandescent. SDG&E workpaper submission includes the following:

* SDG&E adopts all savings impacts and measure IDs from PEAR database with start dates of 07/01/2018.
* SDG&E adopts all PAR30 baseline line cost data from PG&E workpaper PGECOLTG141 Rev9 LED PAR Lamp.
* Measure costs were referenced from PG&E’s draft cost data workbook “Recesseddownlight-led-lowes\_(2).xls”. SDG&E updated both the measure costs and the incremental measure costs to adhere to the 2018 Screw-In Lighting Disposition to follow the new baseline mix.

## Document Revision History

|  |  |  |  |
| --- | --- | --- | --- |
| **Rev** | **Date** | **Author** | **Summary of Changes** |
| 0 | 4/30/2018 | Eduardo Reynoso/ SDG&E | * New short form (SF) workpaper for LED recessed downlight retrofit kit. * New Implementations in response to March 1, 2018 screw-in Lighting Disposition issued by CPUC ED. * Created new Implementations (measure codes) by adopting PEAR database DEER Measure IDs with start dates of 07/01/2018. * Adopted PG&E’s proposed measures and standard cost that align with both EISA bin and CEC Specification for all General Service Lamps (GSL). * Adopted and updated all LED screw-in lamps NTG ID = “All-Ltg-ScrwInLED” (= 0.91) with 07/01/2018 start date. |
| 0.1 | 5/15/2018 | Kelvin Valenzuela/SDG&E | * Revised measure and base costs, which enables lamp wattage below 10 watts to have positive incremental costs. These implementation IDs are included in the ex ante tables. * Ex Ante tables also include CPUC’s updates to missing commercial can retrofit DEER IDs |

## Measure Summary

Table 1: Measure Summary Table

| **Section** | **Value** |
| --- | --- |
| **Summary & Purpose** | This short form workpaper (WP) documents the updates addressing the March 1, 2018 screw-in lighting disposition issued by CPUC Energy Division. The updates include creating new measure codes that are based on EISA bins and CEC specifications for all General Service Lamps (GSL). |
| **1.1 Measure & Baseline Data** | Refer to Ex-ante data tables entitled “20180514\_LED\_r1.MDB” for SDG&E Implementation source documentation and adoption of DEER Measure IDs.   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **LED Lamp Type** | **Sector** | **Measure Description** | **Baseline Standard Description** | **UseSubCategory** | | PAR30 | Residential &  Commercial | LED Lamp: PAR30, 21 Watts, non-dimmable  LED Lamp: PAR30, 20 Watts, non-dimmable  LED Lamp: PAR30, 19 Watts, non-dimmable  LED Lamp: PAR30, 18 Watts, non-dimmable  LED Lamp: PAR30, 17 Watts, non-dimmable  LED Lamp: PAR30, 16 Watts, non-dimmable  LED Lamp: PAR30, 15 Watts, non-dimmable  LED Lamp: PAR30, 14 Watts, non-dimmable  LED Lamp: PAR30, 13 Watts, non-dimmable  LED Lamp: PAR30, 12 Watts, non-dimmable  LED Lamp: PAR30, 11 Watts, non-dimmable  LED Lamp: PAR30, 10 Watts, non-dimmable  LED Lamp: PAR30, 9 Watts, non-dimmable  LED Lamp: PAR30, 8 Watts, non-dimmable | Total Watts = 2.34 x Msr Watts | * InGen-CFL * OutCommon * OutGen | | Downlight (CanRet) | Residential &  Commercial | LED Lamp: Can Retrofit, 23 Watts  LED Lamp: CanRet, 21 Watts, non-dimmable  LED Lamp: Can Retrofit, 20 Watts  LED Lamp: CanRet, 15 Watts, non-dimmable  LED Lamp: CanRet, 14 Watts, non-dimmable  LED Lamp: CanRet, 13 Watts, non-dimmable  LED Lamp: CanRet, 12 Watts, non-dimmable  LED Lamp: CanRet, 11 Watts, non-dimmable  LED Lamp: CanRet, 10 Watts, non-dimmable  LED Lamp: CanRet, 9 Watts, non-dimmable  LED Lamp: CanRet, 8 Watts, non-dimmable | Total Watts = 2.34 x Msr Watts | * InCommon * InGen-CFL | |
| **1.2 Technical Description** |  |
| Measures | Adopted PEAR database “2018Phase1ScrewInLampDisposition” measure description for LED Recessed Downlight (CanRet) types. |
| Code for All Measures | Halogen Incandescent or CFL A-lamp |
| Requirements | **Program Requirements and Guidelines**   * + The delivery method is the Upstream and Upstream/Midstream Lighting Programs as well as our Direct Install programs. Rebates are based on a one-for-one replacement of incandescent or CFL fixtures up to 100 watts.   + Customers are responsible for verifying that new fixtures work with existing lighting controls.   **Program Restrictions and Guidelines**  To qualify for a rebate, the following requirements must be met:   * + All new LED retrofit kits must be on the ENERGY STAR qualified products list and be listed with the Department of Energy Lighting Facts Program.   + LED Downlight retrofit kits must be fully integrated (including lamp, driver, and socket adapter), replacing R20, BR20, ER20 incandescent, or R30, BR30, ER30, R40, BR40, or ER40 incandescent or integral CFL lamps in recessed can fixtures.   + LED screw-in lamps are not eligible under these measures.   + The LEDs must meet a minimum luminaire efficacy of 42 lm/W.   + Downlights intended for installation in insulated ceilings shall be IC rated and be leak tested per ASTM E-283 standard test method to demonstrate no more than 2.0 cfm at 75 Pa pressure difference, and must display a label certifying “airtight” or similar designation which shows accordance with this requirement.   + A product cut sheet must be provided.   **Terms and Conditions**  The customer must be a residential SDG&E electrical customer.  **Market Applicability**  Single and multi-family installations are eligible. Fixtures with incandescent reflector lamps are mostly used in residential sector, including multifamily.  Delivery Method and Applicable Building Types Delivery Type Applicable Building Types   |  |  |  | | --- | --- | --- | | **Delivery Type** | **Applicable Building Types** | **Application Type** | | Upstream | “Com,” “Res” | ROB | | Downstream | “MFm”, “Res”, “Com” | ROB | |
| **1.3 Installation Type and Delivery Mechanisms** |  |
| Installation Type | Replace on Burn-out (ROB) |
| Delivery Mechanisms | Upstream Incentives  Downstream Rebate  Direct Install |
| **1.4.1 DEER Data** |  |
| Net-to-Gross Ratio | In SDG&E/SCG bi-weekly call, the Commission Staff provided details to their PEAR database values, including new NTG values reflective of the screw-in disposition. These NTG IDs are used for both A-lamps, PARs, R-BR, Candelabra, and Globes LED Lamp types.  Expire on 6/30/2018   1. NonRes-sAll-mLEDARefl for nonresidential LED A-lamp and screw-in reflector, 0.91 2. Res-sAll-mLEDARefl for residential LED A-lamp and screw-in reflector, 0.91   Start on 7/1/2018   1. “All-Ltg-ScrwInLED” for all LED lamps and Can Retrofits, 0.91 |
| Effective and Remaining Useful Life | ILtg-Com-LED-20000hr; Varies based on READI linking  ILtg-Res-LED-20000hr; 16 years |
| **Section 2. Calculation Methodology** | Based on the March 1, 2018 screw-in lighting disposition, this table represents the minimum LPW requirement per EISA bin  **Table 1 – Minimum Efficacy Requirements**   |  |  |  | | --- | --- | --- | | **EISA Wattages (W)** | **2018 efficacy (LPW)** | **2019 efficacy (LPW)** | | 40 | 80 | 95 | | 60 | 90 | 100 | | 75 | 90 | 110 | | 100 | 90 | 110 |   Based on these requirements, the disposition generated revised savings at each new measure definition. |
| Energy Savings/Peak Demand Reduction – All Measures | SDG&E adopts energy efficiency savings impacts (Kwh, Kw and therm) as specified in PEAR data base DEER Measures with Source Description = “2018Phase1ScrewInLampDisposition”. Refer to Ex-ante data tables entitled “20180514\_LED\_r1.MDB” for SDG&E Implementation adoption of DEER Measure IDs. |
| **Section 3. Load Shapes** | Varies – per READI linking |
| **Section 4. Costs** | SDG&E adopts all PAR30 baseline line cost data from PG&E workpaper PGECOLTG141 Rev9 LED PAR Lamp. These costs are embedded in WPSDGENRLG0107-0\_CostSummary.xlsx.  Measure costs were referenced from PG&E’s draft cost data workbook “Recesseddownlight-led-lowes\_(2).xls”, which is embedded in WPSDGENRLG0107-0\_CostSummary.xlsx. SDG&E updated both the measure costs and the incremental measure costs to adhere to the 2018 Screw-In Lighting Disposition to follow the new baseline mix. |
| **Section 4.1 Base and Measure Costs** | Cost data workbook(s):   * WPSDGENRLG0107-0\_CostSummary.xlsx   **PAR Lamps (PARs, BR/R)**   * 10% CFL, 40% LED and 50% incandescent. * SDG&E adopts PG&E’s workpaper cost data from PGECOLTG141 R9 LED PARs |
|  | Cost IDs are included in the Ex-ante data cost table found in “20180514\_LED\_r1.MDB”. |
|  | See Excel Ex-ante data tables entitled “20180514\_LED\_r1.MDB” for SDG&E sourced cost documentation. |