

State of California

Memorandum



Date: November 3, 2020

To: Gary Barsley, Southern California Edison (SCE); Henry Liu, Pacific Gas and Electric (PG&E); Chan Paek, Southern California Gas (SCG); Ed Reynoso, San Diego Gas and Electric (SDG&E); John Zwick (SDG&E); Nancy Goddard, PacifiCorp

CC:

From: Peter Biermayer - Utilities Engineer, Energy Efficiency Planning and Forecasting Section, Energy Efficiency Branch, Energy Division, CPUC

Subject: Energy Efficiency Disposition Approving Type B and Type C LED, Tube: SWLG018-01 and extending expiration dates for LED Tube Type A: SWLG009-02, and LED High or Low Bay SWLG011-03

1. Discussion and Direction

The California Public Utilities Commission (CPUC) approves the statewide workpaper for Type B and Type C LED, Tube: **SWLG018-01**. This workpaper is a Phase 2 submission for 2021 and the workpaper will become effective on 01/01/2021 with an expiration date of 12/31/2022.

This disposition also extends the expiration dates for two lighting workpapers as follows:

LED Tube Type A: **SWLG009-02**. This workpaper was revised to reflect an increase in standard practice efficacy and approved 7/30/20 to be effective 1/1/2021 to 12/31/2021 as set forth in the July 20, 2020 disposition¹. The expiration date for this workpaper is extended to 12/31/2022 and a new workpaper should be submitted by June 1, 2022 for program year 2023.

LED High or Low Bay: **SWLG011-03**. This workpaper was revised to reflect an increase in standard practice efficacy and approved 7/30/20 to be effective 1/1/2021 to 12/31/2021 as set forth in the July 20,

¹ CPUC Disposition Approving LED Tube Type A: SWLG009-02. July 30, 2020.

2020 disposition². The expiration date for this workpaper is extended to 12/31/2022 and a new workpaper should be submitted by June 1, 2022 for program year 2023.

2. Workpaper Summary

Lighting workpaper SWLG018-01 supports measures that replace 4-foot, T8 fluorescent lamps with linear tubular LED lamps (TLEDs) that have an efficacy of 160 lm/W or higher under normal replacement (NR) and accelerated replacement (AR). This measure is considered an alteration of the existing lighting condition and consequently will trigger Title 24. When Title 24 is triggered, requirements for lighting power density and the inclusion of lighting controls systems applies.

The first baseline of the AR measure is fluorescent lamps with efficacies of approximately 90 lm/W, the same as the approved Type A baseline, and a second baseline of LED lamps with efficacies of 133 lm/W. The proposed second baseline of 133 lm/W is sufficiently high to meet the most stringent interpretation of Title 24 lighting power density requirement and additional controls may be required in some applications for code compliance. In addition to the preponderance of evidence supporting the existing baseline, the customer must present evidence of meeting control and lighting power density (LPD) thresholds.

The normal replacement measure also assumes that the most stringent interpretation of Title 24 compliance is triggered. The proposed baseline of 133 lm/W, an industry standard practice efficacy, should well exceed the equivalent Title 24 LPD requirement. Like the AR version of the measure, the customer must present evidence of complying to LPD maximums and to controls required by code.

This measure complies with resolution E-4952 because it is using a baseline that exceeds that required in the resolution (133 lm/W rather than 100 lm/W). The operating hours and interactive effects for all impacts were taken from the most applicable and updated DEER data and that all relevant cost and energy savings calculations were accurate.

The workpaper is in conformance with previous direction, including E-4952 (October 2018) and the DEER Update Resolution E-5009, to update the efficacy based on analysis of current products on the market.

3. Critical Review Issues

Prior CPUC guidance suggested that LED performance was increasing by approximately 10-12 lm/W per year, but this rate of efficacy increase has slowed, though is likely to continue to improve. This will warrant an adjustment in efficacy value for program year 2022 and future program years. Actual values will require further research and evaluation of the Design Lighting Consortium (DLC) Premium standards product lists.

² CPUC Disposition Approving LED High or Low Bay: SWLG011-03. July 30, 2020.

4. CPUC Direction

This disposition sets an expiration date of 12/31/2022 for workpaper **SWLG018-01** and a new workpaper should be submitted by June 1, 2022 for program year 2023 with revised efficacy values based on relevant research and analysis.

This disposition extends the expiration date for LED Tube Type A: **SWLG009-01** to 12/31/2022 and a new workpaper should be submitted by June 1, 2022 for program year 2023 with revised efficacy values based on relevant research and analysis.

This disposition extends the expiration date for LED High or Low Bay: **SWLG011-03** to 12/31/2022 and a new workpaper should be submitted by June 1, 2022 for program year 2023 with revised efficacy values based on relevant research and analysis.