Disposition For Workpapers Covering Exterior LED Lighting Fixtures

California Public Utilities Commission, Energy Division

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# Review Scope

This disposition includes a detailed review of SCE’s workpapers SCE17LG114 and SCE17LG120, which cover exterior LED lighting fixtures equipped with motion sensing controls. However, there are overall issues related to Measure Application Type, standard practice baseline and the impacts of Resolution E-4818 that will affect ex ante savings values for several other workpapers. Refer to Table 1 for a list of all workpapers covered by this disposition.

Table 1 – Exterior Lighting Fixture Workpapers

|  |  |  |  |
| --- | --- | --- | --- |
| **Workpaper ID** | **Rev** | **Workpaper Title** | **Official Submittal Date** |
| **SCE** |  |  |  |
| SCE17LG114 | 0 | Exterior LED Luminaire with Integrated Occupancy Sensor | 1/1/2017 |
| SCE17LG120 | 0 | LED Exterior Light Fixture with Motion Sensor Between 15 to <24 ft. | 1/1/2017 |
| **Other Workpapers Impacted by this Disposition** | | | |
| **SCE** |  |  |  |
| SCE13LG097 | 3 | LED Street Lighting | 11/21/2016 |
| **PG&E** |  |  |  |
| PGECOLTG151 | 6 | LED Outdoor Street and Area Lighting | 8/1/2016 |
| **SDG&E** |  |  |  |
| WPSDGENRLG0198 | 0 | Exterior LED Sports & Athletic Field Lighting Fixtures | 9/15/2015 |
| WPSDGENRLG0181 | 3 | Exterior LED Lighting Outdoor Street and Area | 7/2/2015 |

# Critical Review Issues

## Clarify Measure Application Type

The measures all have normal replacement (NR, also referred to as replace-on-burnout, ROB) measure application type, but allow different performance for technologies that represent pre-existing baselines. The use of pre-existing technology baselines implies the measures are early retirement (ER) instead of NR. If measures are intended to be NR, revise all measures to have savings above a standard practice baseline. If measures are ER, include additional program information to support an earlier retirement claim and include a second period savings calculated above a standard practice baseline. Workpapers shall be updated to consider the recent DEER update establishing LED technologies as the standard practice baseline.

## Add standard practice baseline technologies to early retirement measures

Early retirement measures must be defined using both pre-existing and standard practice baseline technology descriptions.

## Consider Revisions Pursuant to Draft Resolution E-4818

Resolution E-4818 establishes certain measure groups as eligible for deemed early retirement status. Workpapers for these measures must include procedures for determining a preponderance of evidence that the PAs’ programs influenced the early retirement.

## Update impacts for early retirement measures to include first and second period savings

All early retirement measures are required to include above pre-existing and above standard practice impacts.

## Use Ex Ante Approved Annual Hours of Use (SCE17LG114 and SCE17LG120)

Proposed savings calculations assume a base operating hours of 4,380 per year. Revise using 4,100 hours per year, which is the approved ex ante value.

## Use Consistent Hours of Use Reductions for Both Workpapers (SCE17LG114 and SCE17LG120)

Each workpaper uses different assumptions for the reduction in operating hours due to the integrated motion sensors. Revise so that both workpapers use the same assumptions.

# Detailed Review

## Clarify Measure Application Type

Measures in both workpapers are specified as having normal replacement (NR, also referred to as replace-on-burnout, ROB) measure application type. However all measures are defined with a specific pre-existing technology either pulse start metal halide (PSMH) or high pressure sodium (HPS). Knowledge of the specific pre-existing technology implies that measures are early retirement, not NR/ROB. As directed in the overall lighting disposition issued for the 2013-2014 program cycle, early retirement measures are only allowed in certain direct install programs that include protocols for identifying pre-existing technologies and all necessary conditions for early retirement claims. Resolution E-4818 allows added use of ER in deemed activities when the preponderance of evidence (PoE) requirements are met; resubmission of workpapers to include ER must follow the PoE requirements.

## Add standard practice baseline technologies to early retirement measures:

Early retirement measures require both a pre-existing and standard practice baseline. Add standard practice baselines to all submitted measure definitions and revise energy impacts accordingly. Since the DEER code baseline for exterior lighting is defined as PSMH with equivalent performance as the measure technology, the submitted measures defined with PSMH pre-existing technologies are acceptable at this time. For the measures defined with HPS pre-existing technologies, add PSMH second baseline technologies that have equivalent performance as the measure technologies.

The DEER2018 update defines the standard practice for exterior lighting measures to be LED technologies. This does not mean that all LED measures should be removed from programs. Instead, PAs should perform research on LED products intended to differentiate between various performance levels of LED products, with the objective of identifying the highest performing LED products to include in their programs.

## Consider Revisions Pursuant to Draft Resolution E4818

Exterior lighting measures are likely covered under the draft resolution E4818 as deemed early retirement measures. Deemed early retirement measures must include, in workpapers, simplified methods for establishing the preponderance of evidence that the PAs’ programs influenced the early retirement. CPUC staff emphasizes that it considers LEDs a standard practice technology for exterior lighting applications, which means any early retirement measure that installs standard practice technology would only be assigned savings for the RUL, not the full EUL. Savings through the EUL period would only be assigned for the highest performing LED products as discussed in Section 3.1.1, above. Revisions to workpapers to that add early retirement measures pursuant to E4818 shall include at least the following:

1. Procedures for establishing preponderance of evidence of early retirement along with development of updated NTG values that take into account freeridership above the existing conditions baseline to the standard practice baseline.
2. Standard practice baseline that represents the typical types of LED fixtures that would be installed absent the programs.
3. Measure definitions that represent the higher performing LED fixtures that exceed the performance of the standard practice baseline established per above description.

## Update impacts for early retirement measures to include first and second period savings

Update impacts for early retirement measures to include savings for the second period that are calculated above the code baseline established per 3.1.1 above.

## Revise workpaper and program criteria to reflect requirements for early retirement measures (SCE17LG114 and SCE17LG120)

Consistent with lighting dispositions issued for the 2013-2014 program cycle, deemed measures can only be claimed as ER by direct install or other programs in cases where the adopted ER PoE and documentation of pre-existing equipment requirements have been met. For downstream applications, IOUs shall submit, in workpapers for staff review and approval, research and documentation that supports the claim of early retirement in downstream rebate applications[[1]](#footnote-1),[[2]](#footnote-2).

## Use Ex Ante Approved Annual Hours of Use (SCE17LG114 and SCE17LG120)

Savings are calculated using a basis of 4,380 operating hours per year. Revise all calculations to start with a basis of 4,100 operating hours which is the ex ante approved value. The value of 4,380 was part of an interim approval of a single third party workpaper submitted by PG&E for the 2013-2014 program cycle. CPUC staff waived review of this workpaper, granting it interim approval. The operating hours of 4,380 were added to the ex ante database so that EULs for the interim approved measures could be properly documented in the database. However, CPUC staff never intended for this value to be used in other workpapers.

## Use Consistent Hours of Use Reductions for Both Workpapers

Each workpaper uses a different method to calculate the operating hours of lighting fixtures equipped with motion sensors as described below:

SCE17LG114:

Basis operating hours: 4,380

Operating hours with controls: 4,380/2 + 4,380/2 \* 0.35 = 2.956.5

Using correct basis operating hours per 3.2 above: 4,100/2 + 4,100/2 \* 0.35 = 2,767.5

SCE17LG120:

Basis operating hours: 4,380

Operating hours with controls: 4,380 \* 0.85 = 3,723

Using correct basis operating hours per 3.2 above: 4,100 \* 0.85 = 3,485

SCE17LG114 covers lighting fixtures that are not required by Title 24 to include motion sensors. Therefore a large portion of the savings results from reduced hours of use in addition to the lower fixture power. SCE17LG120 covers lighting fixtures that are required by Title 24 to include motions sensors. In this case the only savings results from the reduced fixture power and larger hours of use result in more savings. CPUC staff directs SCE to use only one method for calculating operating hours for fixtures equipped with motions sensors and to apply that method in both workpapers. Revise impacts for both workpapers to incorporate 4,100 annual basis operating hours as well as a single, uniform method to account for reduced operating hours due to motion sensors.

1. Lighting Disposition Summary of Changes - Linear Fluorescent. Part 2 (of 3): Linear Fluorescent lighting Systems including 342 measures from 11 IOU workpapers. September 15, 2014. See www.deeresources.com. [↑](#footnote-ref-1)
2. Lighting Retrofit Disposition Summary of Changes - High Bay and HID Technologies and Hard-wired Exterior Lighting. Part 3 (of 3): Retrofits of fixtures installed in high-bay applications, hard-wired exterior lighting, or measures which include high intensity discharge (HID) technologies including 224 measures from 31 IOU workpapers. November 25, 2014. See www.deeresources.com. [↑](#footnote-ref-2)