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PUBLIC UTILITIES COMMISSION



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To: California Energy Efficiency Program Administrators

From: Commission ex ante team

Date: January 27, 2015

Subject: 2015 Workpaper Guidance – Lighting Retrofits

The purpose of this memo is to provide further direction to Program Administrators (PAs) for the revision, development and submittal of non-DEER lighting measures and ex ante data for the program year beginning on January 1, 2015. This direction is based the direction and dispositions provided to PAs covering their lighting retrofit workpapers for the 2013-2014 program cycle. The first disposition on lighting retrofits was issued at the beginning of the 2013-2014 program cycle.[[1]](#footnote-1) Over the past several months, staff has been developing dispositions on all lighting retrofit workpapers submitted by PAs for the 2013-2014 program cycle. One of the most important actions of the lighting dispositions is to apply DEER compliant code baselines retroactively to all accomplishments starting on January 1, 2013. Staff published a background document, to provide background and justification for this part of the lighting dispositions.[[2]](#footnote-2) To support the final disposition of lighting measures staff has developed three summary documents that discuss the major issues and their dispositions in the following three technology categories:

1. Screw-in CFLs, MR-16 LEDs and screw-in LEDs[[3]](#footnote-3)
2. Linear fluorescent retrofits, except high-bay installations.[[4]](#footnote-4) The IOUs submitted comments on this document. Staff summarized those comments and provided responses.[[5]](#footnote-5)
3. HID, induction and LED technologies, high-bay linear fluorescent fixtures and hard-wired exterior lighting.[[6]](#footnote-6)

The final, measure-by-measure disposition for all 2013-2014 lighting retrofit measures is not yet complete. However, the disposition includes important general directions that staff directs PAs to incorporate into their workpapers and measure definitions for the 2015 program year. Energy Division staff will meet with PA program staff (or whoever is responsible for implementing the guidance found in this memo) to make sure the PAs are interpreting this guidance properly. The intent is to make sure any workpapers submitted in 2015 are completely in line with this memo, and any other previous direction, in an attempt to minimize any retroactive application during the 2015 workpaper disposition process. By allowing a few months to make sure PAs follow this guidance, Energy Division expects the workpapers and subsequent dispositions to be more in line with each other, using this memo as the main guide for comparison. All lighting workpapers submitted with the intent to be effective for 2015 will be required to follow the requirements in this document. Lighting workpapers submitted that do not follow the guidelines of this disposition in addition to the three parts of the technology specific disposition issued in the second half of 2014 will be returned for correction according to the Phase 2 review process directed in D.12-05-015.

1. **Requirements for Measure Specification**

All lighting lamp replacements, fixture retrofit and fixture replacement measures shall be defined according to the DEER ex-ante specification. Lighting retrofit measures shall be defined in such a way that they can be populated to the ex ante database, as viewable through the READI tool, without errors. Guidance for properly specifying ex ante data is provided on the DEER public website.[[7]](#footnote-7)

1. **Identification of Technologies**

Lighting measures shall reference technology IDs for the pre-existing, code/standard and measure technologies. Specifying the above pre-existing and above code/standard change in total Watts using the Measure table fields PreScaleVal and StdScaleVal is not allowed. During the 2013-2014 cycle, the CPUC ex ante team added all technologies covered by lighting workpapers to the ex ante database. Except for new measure technologies added to programs starting on January 1, 2015, all technologies should be currently available in the ex ante database for inclusion in measure specifications. The ex ante team will provide on-going assistance to PAs in adding new technologies to the ex ante database.

1. **Specification of Use Subcategories and Identification of Normalized Impacts**

All lighting measures shall be defined using one of the Use Subcategories and normalized Impact IDs included in the ex ante database, accessible via the READI tool in the “Classification Trees” tab in the “Use Categories” section. Each Use Subcategory includes a set of available impact IDs for that Use Subcategory. Table 1 lists and describes each Use Subcategory along with any restrictions for its use. Table 2 lists the available normalized Impact IDs for each Use Subcategory.

Table 1 – Description of Lighting Use Subcategories and Requirements

|  |  |  |
| --- | --- | --- |
| **Code** | **Description** | **Requirements and Normalized Impact IDs** |
| InCommon | Indoor common area | Allowed only for residential building types |
| InExit | Indoor exit lighting | Allowed only for commercial building types |
| InGen | Indoor general lighting | Available for residential and commercial building types |
| OutCommon | Outdoor common area lighting | Allowed only for residential building types |
| OutDuskDawn | Outdoor dusk-to-dawn operation lighting | Outdoor lighting that operates from dusk to dawn |
| OutGen | Outdoor general lighting | Available for residential and commercial building types |
| ParkGar | Parking garage (unconditioned) | Allowed only for enclosed, unconditioned parking garages |

Table 2 - Normalized Lighting Impacts by Lighting Use Subcategory

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Code** | **Sector** | **Impact ID** | **Technology Application** | **Hours** |
| InCommon | Residential | Res-Iltg-Cmn-dWatt-CFL | Screw-in CFL, screw-in LED, pin-based CFL, MR-16 | 6,142 |
|  |  | Res-Iltg-Cmn-dWatt-LF | All other technologies not listed for  *Res-Iltg-Cmn-dWatt-CFL* | 4,340 |
| InExit | Commercial | Com-Iltg-dWatt-Exit | All commercial exit lighting | 8,760 |
| InGen | Residential | Res-Iltg-dWatt-CFLdim | Dimmable or 3-way screw-in CFLs | 427 |
|  |  | Res-Iltg-dWatt-CFL | All other screw-in CFLs, screw-in LED, pin-based CFL, MR-16 | 541 |
|  | Commercial (see note 1) | Com-Iltg-dWatt-CFLdim | Dimmable or 3-way screw-in CFLs | Varies |
|  |  | Com-Iltg-dWatt-CFL | All other screw-in CFLs, screw-in LED, pin-based CFL, MR-16 | Varies |
|  |  | Com-Iltg-dWatt-LF | All other technologies not listed for  *Com-Iltg-dWatt-CFLdim* or *Com-Iltg-dWatt-CFL* | Varies |
| OutCommon | Residential | Res-Oltg-Cmn-dWatt-CFL | Screw-in CFL, screw-in LED, pin-based CFL, MR-16 | 3,390 |
|  |  | Res-Oltg-Cmn-dWatt-LF | All other technologies not listed for  *Res-Oltg-Cmn-dWatt-CFL* | 4,340 |
| OutDuskDawn | Any | Oltg-DuskDawn-dWatt | Any dust-to-dawn application | 4,380 |
| OutGen | Residential | Res-Oltg-dWatt-CFL | Screw-in CFL, screw-in LED, pin-based CFL, MR-16 | 1,249 |
|  | Commercial | Com-Oltg-dWatt | Any commercial, outdoor lighting application | 4,100 |
| ParkGar | Any | Oltg-24hr-dWatt | Any enclosed, unconditioned parking garage | 8,760 |

Notes:

1. Interior lighting annual operating hours for commercial buildings vary by building type.
2. **Non-DEER Building Types**

The non-DEER building types described in Table 3 are approved for use in lighting retrofit measures until December 31, 2015. Refer to READI for hours of use and interactive effects.[[8]](#footnote-8) These building types are not approved for upstream delivery claims nor may they be used for savings calculations in custom projects.

Table 3 - Approved Non-DEER Building Types

|  |  |  |
| --- | --- | --- |
| **Code** | **Building Type** | **Notes and Restrictions** |
| Cnc | Health or medical clinic | * Uses the DEER small office, OfS, lighting hours of use and interactive effects * Replaces the building type “s\_Cli” originally submitted by SCE for the 2013-2014 cycle |
| s\_Agr | Agricultural | * Originally proposed by SCE for the 2013-2014 cycle |
| s\_FSt | Food store | * Originally proposed by SCE for the 2013-2014 cycle * Allowed for small food, convenience or liquor store with less than 10,000 square feet of floor area |
| s\_Ind | Industrial | * Originally proposed by SCE for the 2013-2014 cycle |
| s\_MiC | Miscellaneous commercial | * Originally proposed by SCE for the 2013-2014 cycle * Allowed for miscellaneous small commercial buildings with less than 10,000 square feet of floor area not elsewhere listed in DEER |
| s\_TCU | Transportation, communication and utilities | * Originally proposed by SCE for the 2013-2014 cycle |
| p\_OTR | Unspecified building type | * Originally proposed by PG&E as “OTR.” This building type represents the case where the building type is not know or not specified for a claimed measure where the energy impacts are dependent on building type. In these cases the “p\_OTR” building shall be selected which will result in the assignment of the lowest savings for the measure among all of the available building types. |

All building types except p\_OTR are approved only until December 31, 2015. These building types were submitted by SCE with its program application for the 2013-2014 cycle.[[9]](#footnote-9) For these building types to be used after December 31, 2015, PAs shall develop and perform research to establish building characteristics for these building types. The guidance decision provided for the development of non-DEER building types, but also requires that measurement and evaluation be provided to support addition and use of these building types as part of the ex ante database.[[10]](#footnote-10) Since these building types are used primarily for the calculation of lighting measure savings, the research should have particular emphasis on determining typical annual hours of use of lighting equipment. Staff recommends the following research timeline:

March 31, 2015: Draft research plan submitted to CPUC staff

August 31, 2015: Field work and data analysis complete

September 30, 2015: Draft research report submitted to CPUC staff

1. **Costs**

The EAR team is concerned that cost information published with DEER versions in 2008 and earlier is out of date and not representative of current costs. Starting January 1, 2015, costs originally published with 2008 and earlier versions of DEER shall not be used unless additional research and documentation is provided that shows this cost data reasonably represents current costs. Staff encourages PAs to work together to develop common statewide costs.[[11]](#footnote-11), [[12]](#footnote-12) Additionally, the CPUC has recently published a measure cost research report that may be used as a primary reference for developing technology and measure costs.[[13]](#footnote-13)

1. **“To-Code” Measures**

Starting January 1, 2015, programs shall not include “to-code” measures. Refer to the summary provided by Staff of the 2015 compliance filings for historical decision language and direction covering process for including to-code measures in programs[[14]](#footnote-14). Any measure technology that matches a DEER definition for a code baseline is considered a to-code measure. Refer to staff guidance on retroactive code baselines for complete development of DEER code baselines.[[15]](#footnote-15) A list of to-code measures from the workpapers submitted for the 2013-2014 cycle is provided in Attachment A. The PAs have submitted several new and revised workpapers since the last detailed staff review of lighting workpapers. The list provided in Attachment A may not be complete. Staff will be reviewing latest workpaers for to-code measures.

1. **Early Retirement Measures**

Any measures with a pre-existing technology that does not meet the DEER requirements for code baseline shall include a DEER code baseline technology that meets the requirements for code baselines included in the staff document covering retroactive code baselines.[[16]](#footnote-16) Measures that include pre-existing and code baselines may be used in implementations with measure application types of either Replace-on-Burnout (ROB) or Early Retirement (ER); however, ER implementations may only be included in direct install programs. Additionally, PAs must include, in their internal project files for ER claims, documentation of the pre-existing technologies as well as documentation that shows a preponderance of evidence that the ER was a result of the PA program intervention. A list of ER measures from the workpapers submitted for the 2013-2014 cycle is provided in Attachment B.

1. **Measure Revisions Pursuant to D.14-10-046**

The EAR team reviewed the compliance filings and identified several areas where revisions are likely needed or where additional supporting documentation is required. Refer to the description of required corrections for complete direction on the necessary revisions required by staff under D.14-10-046.[[17]](#footnote-17) Required revisions are summarized below:

1. Measure cost is less than the rebate cost: Any measures where the measure cost is less than the rebate is expected to be a very rare occurrence and one that requires explanation and justification for staff review and approval. However, staff’s opinion is that all measures having this problem appear to be errors that require correction.
2. Incentive incorrectly specified as rebate: Many costs associated with direct install, upstream, midstream, and direct install delivery mechanisms, as well as fees paid to implementers or other entities, have been incorrectly specified as rebates to customers. These must be revised to reflect the correct classification from incentives to direct install costs or non-incentive direct implementation administrator costs.
3. Early retirement measures with high remaining useful life: Typically the RUL of the pre-existing equipment is equal to or less than the EUL of the replacement equipment; for this reason staff is using the EUL provided by PAs in the measure detail as representative of the EUL of the pre-existing equipment for this error check.
4. Measures with incremental savings but zero incremental cost: Any measures with incremental savings specified are expected to also have incremental costs provided. A measure with incremental savings without an incremental cost is likely a mistake requiring correction. Alternatively, zero incremental cost implies there is no incremental cost required to obtain the incremental savings in which case staff would not approve the measure without specific justification as this indicates that no incentive is normally required.
5. Measures with no incremental savings and no incremental cost: Measures that have no incremental savings and no incremental cost imply that these are “to code” measures which require supporting justification and approval. To-code measures are not approved activities except when specifically authorized by the Commission.
6. Possible errors in NTG assignments: Some measures appear to simply have incorrect NTG assignments. For example, several non-lighting measures appear to be assigned NTG values that are only applicable for lighting measures for direct install to hard-to-reach customers (0.89 for T8 linear fluorescent and 0.8 for commercial CFLs). These appear to be errors that require substitution of the correct NTG assignments.
7. Use of upstream NTG values: Some NTG assignments appear to be values that can only represent upstream incentive delivery mechanisms (such as the commercial package HVAC), but the program and measure information do not clearly indicate these are upstream programs.
8. Use of direct install into hard-to-reach customer default: It appears that all PAs are assigning NTG values from the category of “direct install to hard-to-reach customers” (DI/HTR) for local government (LGP) and third-party (3P) programs. *This NTG designation is NOT for activities that are either direct install OR to hard-to-reach customer, but instead they are only for direct install activities into hard-to-reach customer facilities/homes*. There are specific criteria that must be met for customers to be considered hard-to-reach that exclude most customers in major metropolitan areas as well as businesses over a very small size.
9. Use of Emerging Technology default: It appears that all PAs are assigning the Emerging Technology (ET) default of 0.85 to all LED measures. It is not clear of the basis for this assignment. Since many LED measures appear in 3P or LGP programs, these may also be assigned the DI/HTR defaults as described above. Staff requires PAs to present a list of all measures proposed for ET NTG treatment which includes a summary of the evidence (including specific references that support the request) for attribution of portfolio inclusion to the ET programs. Simply including the ET NTG designation in a workpaper or other document, with no documentation to support the ET program influence claim, is not sufficient.
10. NTG default for recent measures: The DEER “default” NTG value of 0.7 is available to be assigned to measures that have not been in the same program for at least two years. Staff has reviewed previous program cycle workpapers and claims for measures having this NTG assignment and believe that this NTG value has been assigned incorrectly for a number of measures.
11. Use of NTG value that is not in DEER: Values that appear to be from earlier versions of DEER, retired by Commission decision, were used to assign NTG values for Savings-By-Design (SBD) new construction programs.
12. Use of newly authorized NTG value: D.14-10-046 in OP 9 authorized the use of a NTG value of 0.85 for “all projects undertaken by schools, and for programs targeting specific transmission, distribution, or generation constrained areas (other than bottoming-cycle combined heat and power projects)”. The referenced OP also specifies that all “K-12 and community college energy efficiency projects, not just those funded by Proposition 39, are eligible for the treatment specified”.
13. Improper baseline specifications for T5/T5 high bay measures: Staff’s review of the 2013 and 2015 measure details and the previously submitted relevant PA workpapers identified a group of T5 and high-bay linear fluorescent measures replacing high intensity discharge (HID) fixtures that utilized inappropriate baseline technologies. In some cases, replace on burnout (ROB) values were claimed but the pre-existing technologies did not meet DEER requirements for code baselines.
14. To-code measures that are not approved or authorized: Measures that are defined at code or standard practice efficiency levels are considered “to-code” measures. To-code measures are not approved activities except when specifically authorized by the Commission.

**Attachment A – Listing of To-Code Measures from 2013-2014 Workpapers**

Table 4 includes a listing of to-code measures identified in the dispositions for the 2013-2014 lighting retrofit workpapers.

Table 4 - To Code Measures

| **PA** | **Workpaper** | **Measure Code** | **Measure Description** |
| --- | --- | --- | --- |
| PGE | PGE3PLTG166 | LC64 | 250-watt MV to 150-watt MH |
| PGE | PGE3PLTG166 | LC66 | 400-watt MV to 250-watt MH |
| SCE | SCE13LG046 | LT-38071 | Up to 125 Watt Pulse Start HID replacing 101 - 175 Watt lamp base case |
| SCE | SCE13LG046 | LT-32093 | 175 Watt Pulse Start HID replacing 500 Watt Incandescent |
| SCE | SCE13LG046 | LT-87566 | 250 Watt Pulse Start HID replacing 400 Watt Mercury Vapor |
| SCE | SCE13LG046 | LT-27452 | 350 Watt Pulse Start HID replacing 1000 Watt Incandescent |
| SCE | SCE13LG084 | LT-59921 | Up to 125 Watt Exterior Fixture Pulse Start HID replacing 176 - 200 Watt lamp base case |
| SCE | SCE13LG084 | LT-35561 | Up to 175 Watt Exterior Fixture Pulse Start HID replacing 201 - 399 Watt lamp base case |
| SCE | SCE13LG084 | LT-90144 | Up to 250 Watt Exterior Fixture Pulse Start HID replacing 400 Watt lamp base case |
| SCE | SCE13LG084 | LT-44532 | Up to 750 Watt Exterior Fixture Pulse Start HID replacing greater than 400 Watt lamp base case |
| SCE | SCE13LG087 | LT-24162 | (2) U-Tube (1) Instant Start Ballast - Normal Light Output w/ Reflectors T8 Linear Fluorescent replacing (2) T12 U-Tube Fluorescent |
| SCE | SCE13LG087 | LT-40789 | (3) 24in (1) Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (3) 24in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-18592 | (3) 96in (1) Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (3) 96in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-59462 | (4) 24in (1) Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (4) 24in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-45382 | (4) 36in (1) Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (2) 72in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-29478 | (4) 36in (1) Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (4) 36in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-19235 | (4) 96in (1) Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (4) 96in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-59685 | (6) 48in (1) Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (4) 96in T12 Linear Fluorescent |
| SDGE | WPSDGENRLG0013 | unknown | 24" (1)Lamp T12 MB to 24" (1)Lamp T8 IS NLO EB (per lamp) |
| SDGE | WPSDGENRLG0013 | unknown | 24" (2)Lamps T12 MB to 24" (2)Lamps T8 IS NLO EB |
| SDGE | WPSDGENRLG0013 | unknown | 24" (2)Lamps T12 MB to 24" (2)Lamps T8 IS NLO EB with reflector (See NOTE 2 below) |
| SDGE | WPSDGENRLG0013 | unknown | 36" (1)Lamp T12 MB to 36" (1)Lamp T8 IS NLO EB |
| SDGE | WPSDGENRLG0013 | unknown | 72"(2)Lamps T12 to 72"(2)Lamps T8 IS EB |

**Attachment B – Listing of Early Retirement Measures from 2013-2014 Workpapers**

Table 5 includes a listing of ER measures identified in the dispositions for the 2013-2014 lighting retrofit workpapers.

Table 5 - Early Retirement Measures

| **PA** | **Workpaper** | **Measure Code** | **Measure Description** |
| --- | --- | --- | --- |
| PGE | PGE3PLTG166 | L0138 | 175-watt MV to 70-watt MH |
| PGE | PGE3PLTG166 | LC50 | 400-watt MV to 126-watt Fluorescent |
| PGE | PGE3PLTG166 | LC52 | 175-watt MV to 70-watt HPS |
| PGE | PGE3PLTG166 | LC53 | 250-watt MV to 84-watt Fluorescent |
| PGE | PGE3PLTG166 | LC55 | 1,000-watt MV to 400-watt LED |
| PGE | PGE3PLTG166 | LC57 | 175-watt MV to 100-watt HPS |
| PGE | PGE3PLTG166 | LC58 | 250-watt MV to 100-watt HPS |
| PGE | PGE3PLTG166 | LC59 | 250-watt HPS to 78-watt LED |
| PGE | PGE3PLTG166 | LC60 | 400-watt MV to 200-watt HPS |
| PGE | PGE3PLTG166 | LC61 | 175-watt MV to 43-watt LED |
| PGE | PGE3PLTG166 | LC62 | 175-watt MV to 52-watt LED |
| PGE | PGE3PLTG166 | LC63 | 250-watt MV to 64-watt LED |
| PGE | PGE3PLTG166 | LC64 | 250-watt MV to 150-watt MH |
| PGE | PGE3PLTG166 | LC65 | 400-watt MV to 64-watt LED |
| PGE | PGE3PLTG166 | LC66 | 400-watt MV to 250-watt MH |
| PGE | PGE3PLTG166 | LC69 | 175-watt MV to 65-watt Fluorescent |
| PGE | PGE3PLTG172 | L1032 | Replace Standard Metal Halide fixture 190W with a HP T8 48W fixture (4' fixture with 2 lamps) |
| PGE | PGE3PLTG172 | L1033 | Replace Standard Metal Halide fixture 295W with HP T8 73W fixture (4' fixture with 3 lamps) |
| PGE | PGE3PLTG172 | L1034 | Replace PSMH fixture 456W(400W lamp) with HP T8 144W fixture(4' fixture with 6 lamps) |
| PGE | PGE3PLTG172 | L1035 | Replace one-for-one existing Mercury Vapor fixture 455W with HP T8 96W fixture (4' fixture with 4 lamps) |
| PGE | PGE3PLTG172 | L1036 | Replace one-for-one existing metal halide fixture 1080W with HP T8 lamp fixture 600W with NEMA premium ballast (8' fixture with 10 lamps) |
| PGE | PGE3PLTG182 | L0270 | FIXTURE INT INDUCTION - 400 WATTS BASE CASE - UP TO 250W |
| PGE | PGE3PLTG182 | L1024 | FIXTURE INT INDUCTION: 101-175 W LAMP BASECASE; UP TO 120 WATT LAMP |
| PGE | PGE3PLTG182 | L1025 | FIXTURE INT INDUCTION: 176-399 W LAMP BASECASE; UP TO 180 W LAMP |
| PGE | PGE3PLTG182 | L1026 | FIXTURE INT INDUCTION: 400 W LAMP BASECASE;UP TO 360 W LAMP (TIER 2) |
| PGE | PGE3PLTG188 | L1008 | FIXTURE INT PSMH: 101-175 W LAMP BASECASE; UP TO 125 W CMH/PSMH LAMP |
| PGE | PGE3PLTG188 | L1009 | FIXTURE MH INT PULSE START - > 400 WATTS BASE CASE -UP TO 750 WATT |
| PGE | PGE3PLTG188 | L1010 | FIXTURE MH INT PULSE START - > 400 WATTS BASE CASE - UP TO 600 WATT |
| PGE | PGE3PLTG188 | L1029 | FIXTURE INT PSMH: 176-399 W LAMP BASECASE; UP TO 175 W CMH/PSMH LAMP |
| PGE | PGE3PLTG188 | L1030 | FIXTURE INT PSMH: 400 W LAMP BASECASE; UP TO 250 W CMH/PSMH LAMP |
| PGE | PGE3PLTG189 | L1012 | FIXTURE INT PSMH: 400 W LAMP BASECASE; UP TO 250 W CMH/PSMH LAMP |
| PGE | PGE3PLTG190 | L0262 | Exterior Induction Fixtures - 70W |
| PGE | PGECOLTG113 | L0270 | FIXTURE INT INDUCTION - 400 WATTS BASE CASE - UP TO 250W |
| PGE | PGECOLTG113 | L1024 | FIXTURE INT INDUCTION: 101-175 W LAMP BASECASE; UP TO 120 WATT LAMP |
| PGE | PGECOLTG113 | L1026 | FIXTURE INT INDUCTION: 400 W LAMP BASECASE;UP TO 360 W LAMP (TIER 2) |
| PGE | PGECOLTG114 | L1031 | Replace a Standard Metal Halide fixture 128W with HP T8 25W fixture (4' fixture with 1 lamp) |
| PGE | PGECOLTG114 | L1032 | Replace Standard Metal Halide fixture 190W with a HP T8 48W fixture (4' fixture with 2 lamps) |
| PGE | PGECOLTG114 | L1033 | Replace Standard Metal Halide fixture 295W with HP T8 73W fixture (4' fixture with 3 lamps) |
| PGE | PGECOLTG114 | L1034 | Replace PSMH fixture 456W(400W lamp) with HP T8 144W fixture(4' fixture with 6 lamps) |
| PGE | PGECOLTG114 | L1035 | Replace one-for-one existing Mercury Vapor fixture 455W with HP T8 96W fixture (4' fixture with 4 lamps) |
| PGE | PGECOLTG114 | L1036 | Replace one-for-one existing metal halide fixture 1080W with HP T8 lamp fixture 600W with NEMA premium ballast (8' fixture with 10 lamps) |
| PGE | PGECOLTG131 | L1013 | 400 W interior compact fluorescent |
| PGE | PGECOLTG131 | L1014 | 400 W interior compact fluorescent |
| PGE | PGECOLTG131 | L1021 | 101-175 W interior compact fluorescent |
| PGE | PGECOLTG131 | L1022 | 176-399 W interior compact fluorescent |
| PGE | PGECOLTG154 | L1008 | FIXTURE INT PSMH: 101-175 W LAMP BASECASE; UP TO 125 W CMH/PSMH LAMP |
| PGE | PGECOLTG154 | L1009 | FIXTURE MH INT PULSE START - > 400 WATTS BASE CASE -UP TO 750 WATT |
| PGE | PGECOLTG154 | L1010 | FIXTURE MH INT PULSE START - > 400 WATTS BASE CASE - UP TO 600 WATT |
| PGE | PGECOLTG154 | L1029 | FIXTURE INT PSMH: 176-399 W LAMP BASECASE; UP TO 175 W CMH/PSMH LAMP |
| PGE | PGECOLTG154 | L1030 | FIXTURE INT PSMH: 400 W LAMP BASECASE; UP TO 250 W CMH/PSMH LAMP |
| PGE | PGECOLTG158 | L0262 | Exterior Induction Fixtures - 70W |
| SCE | SCE13LG007 | LT-10297 | 55 Watt Exterior Fixture CFL replacing 250 Watt HID |
| SCE | SCE13LG007 | LT-93845 | 42 Watt Exterior Fixture CFL replacing 150 Watt HID |
| SCE | SCE13LG046 | LT-10924 | 32 Watt Metal Halide High Intensity Discharge replacing 100 Watt Incandescent |
| SCE | SCE13LG046 | LT-18932 | Up to 600 Watt Tier 1 Pulse Start HID replacing greater than 400 Watt lamp base case |
| SCE | SCE13LG046 | LT-21092 | 175 Watt Pulse Start HID replacing 250 Watt Metal Halide |
| SCE | SCE13LG046 | LT-27452 | 350 Watt Pulse Start HID replacing 1000 Watt Incandescent |
| SCE | SCE13LG046 | LT-32093 | 175 Watt Pulse Start HID replacing 500 Watt Incandescent |
| SCE | SCE13LG046 | LT-38071 | Up to 125 Watt Pulse Start HID replacing 101 - 175 Watt lamp base case |
| SCE | SCE13LG046 | LT-48241 | Up to 750 Watt Tier 2 Pulse Start HID replacing greater than 400 Watt lamp base case |
| SCE | SCE13LG046 | LT-64118 | Up to 250 Watt Pulse Start HID replacing 400 Watt lamp base case |
| SCE | SCE13LG046 | LT-71883 | Up to 175 Watt Pulse Start HID replacing 176 - 399 Watt lamp base case |
| SCE | SCE13LG046 | LT-87566 | 250 Watt Pulse Start HID replacing 400 Watt Mercury Vapor |
| SCE | SCE13LG084 | LT-35561 | Up to 175 Watt Exterior Fixture Pulse Start HID replacing 201 - 399 Watt lamp base case |
| SCE | SCE13LG084 | LT-44532 | Up to 750 Watt Exterior Fixture Pulse Start HID replacing greater than 400 Watt lamp base case |
| SCE | SCE13LG084 | LT-59921 | Up to 125 Watt Exterior Fixture Pulse Start HID replacing 176 - 200 Watt lamp base case |
| SCE | SCE13LG084 | LT-63722 | Up to 70 Watt Exterior Fixture Pulse Start HID replacing less than 100 Watt lamp base case |
| SCE | SCE13LG084 | LT-80399 | 180 Watt Low Pressure Sodium High Intensity Discharge replacing 400 Watt Mercury Vapor |
| SCE | SCE13LG084 | LT-90144 | Up to 250 Watt Exterior Fixture Pulse Start HID replacing 400 Watt lamp base case |
| SCE | SCE13LG084 | LT-90454 | 200 Watt High Pressure Sodium High Intensity Discharge replacing 400 Watt Mercury Vapor |
| SCE | SCE13LG085 | LT-26133 | Up to 244 Watt (Tier 1) Interior Fixture CFL replacing greater than 400 Watt lamp base case |
| SCE | SCE13LG085 | LT-33489 | Up to 192 Watt Interior Fixture CFL replacing 176 - 399 Watt lamp base case |
| SCE | SCE13LG085 | LT-83701 | Up to 128 Watt Interior Fixture CFL replacing 101 - 175 Watt lamp base case |
| SCE | SCE13LG085 | LT-84901 | Up to 360 Watt (Tier 2) Interior Fixture CFL replacing greater than 400 Watt lamp base case |
| SCE | SCE13LG086 | LT-10232 | (4) 46in (2) Programmed Start Ballast - Normal Light Output - HO T5 Linear Fluorescent replacing 400 Watt Mercury Vapor |
| SCE | SCE13LG086 | LT-12866 | Up to 128 Watt Interior Fixture T5 Linear Fluorescent replacing 101 - 175 Watt lamp base case |
| SCE | SCE13LG086 | LT-26100 | Up to 244 Watt (Tier 1) Interior Fixture T5 Linear Fluorescent replacing 400 Watt lamp base case |
| SCE | SCE13LG086 | LT-38287 | Up to 244 Watt Interior Fixture T5 Linear Fluorescent replacing 350 Watt lamp base case |
| SCE | SCE13LG086 | LT-39676 | (6) 46in (3) Programmed Start Ballast - Normal Light Output - HO T5 Linear Fluorescent replacing 700 Watt Mercury Vapor |
| SCE | SCE13LG086 | LT-55943 | 245 to 360 Watt (Tier 2) Interior Fixture T5 Linear Fluorescent replacing 400 Watt lamp base case |
| SCE | SCE13LG086 | LT-84912 | Up to 192 Watt Interior Fixture T5 Linear Fluorescent replacing 176 - 399 Watt lamp base case |
| SCE | SCE13LG086 | LT-92448 | Up to 600 Watt Interior Fixture T5 Linear Fluorescent replacing greater than 400 Watt lamp base case |
| SCE | SCE13LG087 | LT-10494 | (2) U-Tube (1) Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (2) T12 U-Tube Fluorescent |
| SCE | SCE13LG087 | LT-12877 | (1) 36in (1) Premium Instant Start Ballast - Reduced Light Output T8 Linear Fluorescent replacing (1) 36in T12 Linear Fluorescent (per lamp) |
| SCE | SCE13LG087 | LT-18409 | (2) 48in (1) Instant Start Ballast - Reduced Light Output T8 Linear Fluorescent replacing (1) 96in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-18592 | (3) 96in (1) Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (3) 96in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-18642 | (1) 36in (1) Premium Instant Start Ballast - Reduced Light Output T5 Linear Fluorescent replacing (1) 36in T12 Linear Fluorescent (per lamp) |
| SCE | SCE13LG087 | LT-18743 | (8) 48in (2) Instant Start Ballast - Reduced Light Output T8 Linear Fluorescent replacing (4) 96in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-18934 | (2) 48in Reduced 28 Watt (1) Instant Start Ballast w/ Reflectors T8 Linear Fluorescent replacing (2) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-18943 | (1) 24in (1) Premium Instant Start Ballast - Reduced Light Output T8 Linear Fluorescent replacing (1) 24in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-19210 | (2) 48in (1) NEMA Premium High Efficiency Ballast T8 Linear Fluorescent replacing (2) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-19235 | (4) 96in (1) Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (4) 96in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-19832 | (2) 48in (1) Instant Start Ballast - Normal Light Output w/ Dimming T8 Linear Fluorescent replacing (1) 96in HO T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-19844 | (2) 96in (1) Instant Start Ballast - Normal Light Output - HO T8 Linear Fluorescent replacing (3) 96in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-20394 | (1) 46in (1) Programmed Start Ballast - Normal Light Output - HO T5 Linear Fluorescent replacing (2) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-20483 | (4) 48in (2) Instant Start Ballast - Reduced Light Output T8 Linear Fluorescent replacing (4) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-20796 | (2) 48in (1) Premium Instant Start Ballast - Reduced Light Output T8 Linear Fluorescent replacing (4) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-20983 | (1) 96in (1) Instant Start Ballast - Reduced Light Output T8 Linear Fluorescent replacing (1) 96in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-24162 | (2) U-Tube (1) Instant Start Ballast - Normal Light Output w/ Reflectors T8 Linear Fluorescent replacing (2) T12 U-Tube Fluorescent |
| SCE | SCE13LG087 | LT-24981 | (2) 48in (1) Premium Instant Start Ballast - High Light Output T8 Linear Fluorescent replacing (2) 96in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-24985 | (2) 48in Reduced 28 Watt (1) Instant Start Ballast w/ Reflectors T8 Linear Fluorescent replacing (3) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-25668 | (2) 34in (1) Premium Instant Start Ballast - Normal Light Output T5 Linear Fluorescent replacing (2) 36in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-27685 | (2) 96in (1) Instant Start Ballast - Reduced Light Output T8 Linear Fluorescent replacing (2) 96in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-29478 | (4) 36in (1) Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (4) 36in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-30495 | (1) 46in (1) Programmed Start Ballast - Normal Light Output T5 Linear Fluorescent replacing (1) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-30765 | (2) 48in Reduced 28 Watt (1) Instant Start Ballast w/ Reflectors T8 Linear Fluorescent replacing (4) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-33633 | (1) 36in (1) Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (1) 36in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-35845 | (3) 96in (1) Instant Start Ballast - Reduced Light Output T8 Linear Fluorescent replacing (3) 96in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-37676 | (2) 48in (1) Instant Start Ballast - High Light Output T8 Linear Fluorescent replacing (4) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-38503 | (2) 48in (1) Instant Start Ballast - Normal Light Output w/ DR Dimming Ballast T8 Linear Fluorescent replacing (4) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-38546 | (2) 48in (1) Premium Instant Start Ballast - Normal Light Output w/ A/B Switching T8 Linear Fluorescent replacing (2) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-38675 | (3) 46in (2) Programmed Start Ballast - Normal Light Output T5 Linear Fluorescent replacing (4) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-39058 | (6) 48in (1) Instant Start Ballast - Reduced Light Output T8 Linear Fluorescent replacing (3) 96in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-39678 | (2) U-Tube (1) Instant Start Ballast - Reduced Light Output T8 Linear Fluorescent replacing (2) T12 U-Tube Fluorescent |
| SCE | SCE13LG087 | LT-39875 | (2) 48in (1) Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (4) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-40596 | (1) 48in (1) Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (1) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-40696 | (2) 48in (1) Instant Start Ballast - Normal Light Output w/ Reflectors T8 Linear Fluorescent replacing (4) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-40789 | (3) 24in (1) Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (3) 24in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-43018 | (2) 36in (1) Premium Instant Start Ballast - Reduced Light Output T8 Linear Fluorescent replacing (2) 36in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-43895 | (1) 48in (1) Instant Start Ballast - Reduced Light Output T8 Linear Fluorescent replacing (1) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-45382 | (4) 36in (1) Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (2) 72in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-46109 | (1) 24in (1) Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (1) 24in T12 Linear Fluorescent (per lamp) |
| SCE | SCE13LG087 | LT-48392 | (1) 96in (1) Instant Start Ballast - Reduced Light Output T8 Linear Fluorescent replacing (2) 96in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-49587 | (2) 48in (1) Premium Instant Start Ballast - Reduced Light Output T8 Linear Fluorescent replacing (3) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-49588 | (3) 48in (1) Instant Start Ballast - High Light Output T8 Linear Fluorescent replacing (4) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-49683 | (3) 48in (1) Instant Start Ballast - Normal Light Output w/ A/B Switching T8 Linear Fluorescent replacing (3) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-49785 | (6) 48in (2) Premium Instant Start Ballast - Reduced Light Output T8 Linear Fluorescent replacing (3) 96in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-49810 | (2) 48in (1) Premium Instant Start Ballast - Reduced Light Output T8 Linear Fluorescent replacing (2) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-49832 | (2) 96in (1) Instant Start Ballast - Reduced Light Output T8 Linear Fluorescent replacing (2) 96in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-49843 | (2) 48in (1) Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (3) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-50379 | (3) 48in (1) Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (3) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-50488 | (4) 46in (1) Instant Start Ballast - Normal Light Output T5 Linear Fluorescent replacing (2) 96in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-50968 | (3) 48in (1) Instant Start Ballast - Normal Light Output w/ A/B Switching T8 Linear Fluorescent replacing (4) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-50998 | (1) 48in (1) Instant Start Ballast - Very High Light Output T8 Linear Fluorescent replacing (2) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-54329 | (8) 48in (2) Premium Instant Start Ballast - Reduced Light Output T8 Linear Fluorescent replacing (4) 96in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-54637 | (2) 24in (1) Instant Start Ballast - Normal Light Output w/ Reflectors T8 Linear Fluorescent replacing (2) 24in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-58109 | (1) 96in (1) Instant Start Ballast - Reduced Light Output T8 Linear Fluorescent replacing (1) 96in T12 Linear Fluorescent (per lamp) |
| SCE | SCE13LG087 | LT-58327 | (2) 48in (2) Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (3) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-58359 | (2) 48in (1) Instant Start Ballast - Normal Light Output w/ A/B Switching T8 Linear Fluorescent replacing (4) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-58535 | (1) 72in (1) Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (1) 72in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-59103 | (4) 48in (1) Premium Instant Start Ballast - Reduced Light Output T8 Linear Fluorescent replacing (2) 96in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-59462 | (4) 24in (1) Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (4) 24in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-59482 | (2) 24in (1) Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (2) 24in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-59685 | (6) 48in (1) Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (4) 96in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-60092 | (3) 48in (1) Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (4) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-60432 | (2) 48in Reduced 28 Watt (1) Instant Start Ballast T8 Linear Fluorescent replacing (2) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-60969 | (2) 24in (1) Premium Instant Start Ballast - Reduced Light Output T8 Linear Fluorescent replacing (2) 24in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-61312 | (1) 24in (1) Instant Start Ballast - Normal Light Output T5 Linear Fluorescent replacing (1) 24in T12 Linear Fluorescent (per lamp) |
| SCE | SCE13LG087 | LT-68385 | (2) 46in (1) Instant Start Ballast - Normal Light Output w/ Dimming T5 Linear Fluorescent replacing (4) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-68578 | (4) 48in (1) Instant Start Ballast - Reduced Light Output (Kit) T8 Linear Fluorescent replacing (2) 96in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-69232 | (2) 46in (1) Programmed Start Ballast - Normal Light Output - HO T5 Linear Fluorescent replacing (4) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-69544 | (6) 48in (2) Premium Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (4) 96in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-71214 | (2) 48in Reduced 28 Watt (1) Instant Start Ballast T8 Linear Fluorescent replacing (3) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-73491 | (2) 46in (1) Instant Start Ballast - Normal Light Output T5 Linear Fluorescent replacing (1) 96in T12 Linear Fluorescent (per lamp) |
| SCE | SCE13LG087 | LT-73849 | (2) 48in (1) Premium Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (4) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-78327 | (4) 48in (2) Instant Start Ballast - Reduced Light Output (New Fixture) T8 Linear Fluorescent replacing (4) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-78548 | (2) 48in (1) Instant Start Ballast - Normal Light Output w/ A/B Switching T8 Linear Fluorescent replacing (3) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-78696 | (2) 46in (1) Programmed Start Ballast - Normal Light Output T5 Linear Fluorescent replacing (2) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-78895 | (2) 22in (1) Instant Start Ballast - Normal Light Output T5 Linear Fluorescent replacing (2) 24in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-79688 | (1) 46in (1) Programmed Start Tandem 2 Lamp Ballast - Normal Light Output - HO T5 Linear Fluorescent replacing (2) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-79821 | (3) 48in (2) Instant Start Ballast - Reduced Light Output T8 Linear Fluorescent replacing (3) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-80796 | (2) 96in (1) Instant Start Ballast - Reduced Light Output T8 Linear Fluorescent replacing (3) 96in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-82210 | (1) 48in (1) Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (1) 48in T12 Linear Fluorescent (per lamp) |
| SCE | SCE13LG087 | LT-83726 | (2) 24in (1) Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (2) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-83912 | (1) 36in (1) Instant Start Ballast - Reduced Light Output T8 Linear Fluorescent replacing (1) 36in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-85932 | (1) 48in Reduced 28 Watt T8 Linear Fluorescent replacing (1) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-85958 | (4) 48in (1) Premium Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (6) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-88743 | (2) 72in (1) Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (2) 72in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-89122 | (2) 48in Reduced 28 Watt (1) Instant Start Ballast T8 Linear Fluorescent replacing (4) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-89585 | (1) 48in (1) NEMA Premium High Efficiency Ballast T8 Linear Fluorescent replacing (1) 48in T12 Linear Fluorescent (per lamp) |
| SCE | SCE13LG087 | LT-89685 | (2) 46in (1) Programmed Start Ballast - Normal Light Output T5 Linear Fluorescent replacing (3) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-89782 | (4) 48in (2) Instant Start Ballast - Reduced Light Output w/ A/B Switching T8 Linear Fluorescent replacing (4) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-89871 | (4) 48in (1) Instant Start Ballast - Reduced Light Output T8 Linear Fluorescent replacing (2) 96in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-90075 | (2) 48in (1) Premium Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (2) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-90213 | (2) 24in (1) Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (4) 24in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-91623 | (6) 48in (1) Premium Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (6) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-93723 | (2) 48in (1) Instant Start Ballast - High Light Output T8 Linear Fluorescent replacing (3) 48in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-94323 | (2) 96in (1) Instant Start Ballast - Reduced Light Output T8 Linear Fluorescent replacing (2) 96in HO T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-94378 | (1) 46in (1) Instant Start Ballast - Normal Light Output T5 Linear Fluorescent replacing (1) 48in T12 Linear Fluorescent (per lamp) |
| SCE | SCE13LG087 | LT-94443 | (2) 96in (1) Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (4) 96in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-98333 | (2) 36in (1) Instant Start Ballast - Normal Light Output T8 Linear Fluorescent replacing (1) 72in T12 Linear Fluorescent |
| SCE | SCE13LG087 | LT-99866 | (4) 48in (1) Instant Start Ballast - Reduced Light Output T8 Linear Fluorescent replacing (4) 48in T12 Linear Fluorescent |
| SCE | SCE13LG090 | LT-26734 | Up to 120 Watt Interior Fixture Induction replacing 101 - 175 Watt lamp base case |
| SCE | SCE13LG090 | LT-34098 | Up to 250 Watt (Tier 1) Interior Fixture Induction replacing 400 Watt lamp base case |
| SCE | SCE13LG090 | LT-69009 | Up to 360 Watt (Tier 2) Interior Fixture Induction replacing 400 Watt lamp base case |
| SCE | SCE13LG090 | LT-80108 | Up to 180 Watt Interior Fixture Induction replacing 176 - 399 Watt lamp base case |
| SCE | SCE13LG108 | LT-29069 | 41 to 80 Watt Wall Pack LED replacing 176 to 250 Watt Metal Halide |
| SDG | WPSDGENRLG0002 | L-D21 | 101-175 Watt lamp base case, up to 120 Watt replacement fixture |
| SDG | WPSDGENRLG0002 | L-D31 | 176-399 Watt lamp basecase, up to 180 Watt replacement fixture |
| SDG | WPSDGENRLG0002 | L-D41 | 400 Watt lamp base case, up to 250 Watt replacement fixture (Tier I) |
| SDG | WPSDGENRLG0002 | L-D51 | 400 Watt lamp base case, up to 360 Watt replacement fixture (Tier II) |
| SDG | WPSDGENRLG0003 | L-D01 | 400 Watt lamp base case, up to 250 Watt replacement fixture |
| SDG | WPSDGENRLG0003 | L-D71 | 101-175 Watt lamp base case, up to 100 Watt replacement fixture |
| SDG | WPSDGENRLG0003 | L-D81 | 176-200 Watt lamp base case, up to 120 Watt replacement fixture |
| SDG | WPSDGENRLG0003 | L-D91 | 201-399 Watt lamp base case, up to 180 Watt replacement fixture |
| SDG | WPSDGENRLG0013 | SDG-WPSDGENRLG0013-Rev03-Msr001 | 24" (1)Lamp T12 MB to 24" (1)Lamp T5 EB (per lamp) |
| SDG | WPSDGENRLG0013 | SDG-WPSDGENRLG0013-Rev03-Msr002 | 36" (1)Lamp T12 MB to 36" (1)Lamp T5 Premium IS RLO EB (per lamp) |
| SDG | WPSDGENRLG0013 | SDG-WPSDGENRLG0013-Rev03-Msr004 | 96"(1)Lamp T12 MB to 96"(1)Lamp T8 RLO IS EB (per lamp) |
| SDG | WPSDGENRLG0013 | SDG-WPSDGENRLG0013-Rev03-Msr008 | 24" (2)Lamps T12 MB to 24" (2)Lamps T5 EB |
| SDG | WPSDGENRLG0013 | SDG-WPSDGENRLG0013-Rev03-Msr009 | 36" (2)Lamps T12 MB to 36" (2)Lamps T5 Premium IS RLO EB |
| SDG | WPSDGENRLG0013 | SDG-WPSDGENRLG0013-Rev03-Msr010 | 48"(1)Lamps T12 MB to 48"(1)28 Watt Premium Lamps w/ RLO IS EB |
| SDG | WPSDGENRLG0013 | SDG-WPSDGENRLG0013-Rev03-Msr011 | 48"(2)Lamps T12 MB to 48"(2)28 Watt Premium Lamps w/ RLO IS EB |
| SDG | WPSDGENRLG0013 | SDG-WPSDGENRLG0013-Rev03-Msr012 | 48"(3)Lamps T12 MB to 48"(3)28 Watt Premium Lamps w/ RLO IS EB |
| SDG | WPSDGENRLG0013 | SDG-WPSDGENRLG0013-Rev03-Msr013 | 48"(4)Lamps T12 MB to 48"(4)28 Watt Premium Lamps w/ RLO IS EB |
| SDG | WPSDGENRLG0013 | unknown | 24" (1)Lamp T12 MB to 24" (1)Lamp T8 IS NLO EB (per lamp) |
| SDG | WPSDGENRLG0013 | unknown | 24" (1)Lamp T12 MB to 24" (1)Lamp T8 Premium IS RLO EB |
| SDG | WPSDGENRLG0013 | unknown | 24" (2)Lamps T12 MB to 24" (2)Lamps T8 IS NLO EB |
| SDG | WPSDGENRLG0013 | unknown | 24" (2)Lamps T12 MB to 24" (2)Lamps T8 IS NLO EB with reflector (See NOTE 2 below) |
| SDG | WPSDGENRLG0013 | unknown | 24" (2)Lamps T12 MB to 24" (2)Lamps T8 Premium IS RLO EB |
| SDG | WPSDGENRLG0013 | unknown | 36" (1)Lamp T12 MB to 36" (1)Lamp T8 IS NLO EB |
| SDG | WPSDGENRLG0013 | unknown | 36" (1)Lamp T12 MB to 36" (1)Lamp T8 IS RLO EB |
| SDG | WPSDGENRLG0013 | unknown | 36" (1)Lamp T12 MB to 36" (1)Lamp T8 Premium IS RLO EB (per lamp) |
| SDG | WPSDGENRLG0013 | unknown | 36" (2)Lamps T12 MB to 36" (2)Lamps T8 Premium IS RLO EB |
| SDG | WPSDGENRLG0013 | unknown | 96"(2)Lamps HO T12 MB to 96"(2)Lamps RLO T8 EB |
| SDG | WPSDGENRLG0013 | unknown | 96"(2)Lamps T12 MB to 48"(2)Lamps HO T8 IS EB |
| SDG | WPSDGENRLG0013 | unknown | 48"(6)Lamps T12 to 48"(6)Lamps T8 Premium NLO EB |
| SDG | WPSDGENRLG0013 | unknown | 72"(2)Lamps T12 to 72"(2)Lamps T8 IS EB |
| SDG | WPSDGENRLG0013 | unknown | 48" (2)Lamps T12 MB to 48"(2)Lamps T8 Premium IS RLO EB |
| SDG | WPSDGENRLG0013 | unknown | 48"(1)Lamp T12 MB to 46"(1)Lamp T5 NLO IS EB (per lamp) |
| SDG | WPSDGENRLG0013 | unknown | 48"(1)Lamp T12 MB to 48"(1)Lamp T8 NLO IS EB (per lamp) |
| SDG | WPSDGENRLG0013 | unknown | 48"(1)Lamps T12 MB to 48"(1)25 Watt Premium Lamps w/ RLO IS EB |
| SDG | WPSDGENRLG0013 | unknown | 48"(2)Lamps T12 MB to 48"(2)25 Watt Premium Lamps w/ RLO IS EB |
| SDG | WPSDGENRLG0013 | unknown | 48"(3)Lamps T12 MB to 48"(3)25 Watt Premium Lamps w/ RLO IS EB |
| SDG | WPSDGENRLG0013 | unknown | 48"(4)Lamps T12 MB to 48"(4)25 Watt Premium Lamps w/ RLO IS EB |
| SDG | WPSDGENRLG0044 | L-H1 | >400 Watt lamp base case, up to 600 Watt replacement fixture |
| SDG | WPSDGENRLG0044 | L-H11 | >400 Watt lamp base case, up to 600 Watt replacement fixture |
| SDG | WPSDGENRLG0044 | L-H2 (EUL-RUL) code baseline | 400 Watt lamp basecase, up to 244 Watt replacement fixture (Tier 1) |
| SDG | WPSDGENRLG0044 | L-H2 (RUL) | 400 Watt lamp basecase, up to 244 Watt replacement fixture (Tier 1) |
| SDG | WPSDGENRLG0044 | L-H21 | 400 Watt lamp basecase, up to 244 Watt replacement fixture (Tier 1) |
| SDG | WPSDGENRLG0044 | L-H3 (EUL-RUL) code | 400 Watt lamp basecase, 245 to 360 Watt replacement fixture (Tier 2) |
| SDG | WPSDGENRLG0044 | L-H3 (RUL) | 400 Watt lamp basecase, 245 to 360 Watt replacement fixture (Tier 2) |
| SDG | WPSDGENRLG0044 | L-H31 | 400 Watt lamp basecase, 245 to 360 Watt replacement fixture (Tier 2) |
| SDG | WPSDGENRLG0044 | L-H4 (EUL-RUL) code | 176-399 Watt lamp basecase, up to 192 Watt replacement fixture |
| SDG | WPSDGENRLG0044 | L-H4 (RUL) | 176-399 Watt lamp basecase, up to 192 Watt replacement fixture |
| SDG | WPSDGENRLG0044 | L-H41 | 176-399 Watt lamp basecase, up to 192 Watt replacement fixture |
| SDG | WPSDGENRLG0044 | L-H5 | 101-175 Watt lamp basecase, up to 128 Watt replacement fixture |
| SDG | WPSDGENRLG0044 | L-H51 | 101-175 Watt lamp basecase, up to 128 Watt replacement fixture |
| SDG | WPSDGENRLG0080 | L-S11 | LED fixtures - 53W |
| SDG | WPSDGENRLG0080 | L-S21 | LED fixtures - 321W |
| SDG | WPSDGENRLG0080 | L-S31 | LED fixtures - 180W |
| SDG | WPSDGENRLG0080 | L-S41 | LED fixtures - 110W |
| SDG | WPSGDENRLG0006 | L-C21 | Interior Fixture :128 Watts |
| SDG | WPSGDENRLG0006 | L-C31 | Interior Fixture: 192Watts |
| SDG | WPSGDENRLG0006 | L-C41 | Interior Fixture: 244 Watts |
| SDG | WPSGDENRLG0006 | L-C51 | Interior Fixture: ≤360 Watts |

1. “Workpaper Disposition for Lighting Retrofits”, March 1, 2013. File name: 2013-2014\_LightingRetrofit\_Disposition-1March2013.docx [↑](#footnote-ref-1)
2. “Explaining the Retroactive Application of Adopted DEER Code Baselines for Lighting Measures” October 23, 2014. File name: LightingRetroactiveCodeBaseline-October232014.docx [↑](#footnote-ref-2)
3. “Summary of Lighting Disposition Issues that Will Result in Changes, Part 1 (of 3): Screw-in CFLs, Screw-in LEDs, MR-16 LEDs, Screw-in ceramic metal halide, and plug-in portable CFL and LED lighting products.” File name: LightingDispositionChanges\_Part1.docx [↑](#footnote-ref-3)
4. “Summary of Changes - Linear Fluorescent” September 15, 2014. File name: Summary of Changes -Lighting Disposition - 2014-09-15 (Linear Fluorescent)-v1d-clean.docx [↑](#footnote-ref-4)
5. “CPUC Staff Response to IOU Comments” October 23, 2014. File name: CommentCompilationLinearFluorescent\_October232014.docx [↑](#footnote-ref-5)
6. The high-bay/HID/exterior lighting disposition summary document is currently under staff review and is expected to be published by December 5, 2014. [↑](#footnote-ref-6)
7. [www.deeresources.com](http://www.deeresources.com), see page “Guidance for creating and claiming against Ex Ante Data” [↑](#footnote-ref-7)
8. . Refer to the ex ante “2014 Lighting Summary” support table of the ex ante database, accessible using READI, for equivalent full-load hours, coincident demand factors and and HVAC interactive effects. [↑](#footnote-ref-8)
9. These building types were proposed as additional building types for the purposes of calculating ex ante savings estimates for deemed lighting measures. SCE developed these building types assuming various mixtures of other DEER building types. SCE staff used their own judgment in developing these mixtures, but had not performed any field research of typical operating conditions for these building types. [↑](#footnote-ref-9)
10. D.12-05-015 OP8 adopts DEER and non-DEER revisions described in Attachment A to that decision. OP10 directs IOUs to follow all direction included in Attachment A.

    Attachment A, item A.6. states: *“… there is no existing EM&V data to support the claim that the typical building types in DEER should have longer operating hours. However, the utilities may utilize a customized calculation approach in situations where it is desired to use site specific parameters to develop energy savings estimates. The customized approach should be utilized for activities that target a building with operating parameters that are substantially different than the DEER assumptions. However, it is expected that in these cases there will be a M&V plan for measurement activities to support the operating hour claims during the custom project review process.”*

    Attachment A, item A.7 states: *“The DEER team has added a customized building type weight feature to the READI tool to accommodate the utilities desire to utilize a combination of existing DEER building types to represent a typical composite building type within their program activities. The weights used to create a new building type will be subject to review by Commission Staff; once approved, the new weighted building type will be incorporated into the DEER database and the associated energy impacts will be able to be referenced as DEER impacts.”*

    After two years of use, there is likely enough available building types to perform the measurement and verification to develop annual hours of use for these building types, instead of continuing to use the mixtures currently included in the ex ante database. [↑](#footnote-ref-10)
11. There are several instances of direction to PAs to work together to develop uniform statewide costs. D.11-07-030 OP4 directed IOUs to update their ex ante values according to Appendix A of that decision. Appendix A at A-5 directs IOUs to develop uniform statewide costs for room air conditioners. For linear fluorescent technologies, Appendix A at A-9 requires IOUs to *“Develop costs for fixtures, lamps and ballasts that are not included in 2008 DEER that are consistent across all IOUs or provide additional data or analysis that supports variation in costs between IOUs.”* [↑](#footnote-ref-11)
12. “Workpaper Disposition for Integral LED Lamp Replacements” California Public Utilities Commission, Energy Division, May 14, 2012 included an examination of the large variation across all IOUs in cost assumptions for LED lamps. The disposition states: *“Energy Division believes the large variation in material costs for similar technologies between different utilities is not reasonable. Utilities shall coordinate to develop revised costs for MR16, PAR and A-design lamps. Costs should be reasonably consistent across all IOU service territories.”* [↑](#footnote-ref-12)
13. “2010-2012 WO017 Ex Ante Measure Cost Study Final Report” California Public Utilities Commission, May 27, 2014. [↑](#footnote-ref-13)
14. “Required Corrections to Measure Level Input Parameters Identified by Commission Staff per D.14-10-046 Order Paragraph 16”, *File name RequiredCorrectionsPerD1410046OrderParagraph16\_20141103corrected.pdf, November 3, 1014***.** [↑](#footnote-ref-14)
15. “Explaining the Retroactive Application of Adopted DEER Code Baselines for Lighting Measures” October 23, 2014. File name: LightingRetroactiveCodeBaseline-October232014.docx [↑](#footnote-ref-15)
16. ibid [↑](#footnote-ref-16)
17. “Required Corrections to Measure Level Input Parameters Identified by Commission Staff per D.14-10-046 Order Paragraph 16”, November 3, 2014. File name: RequiredCorrectionsPerD1410046OrderParagraph16\_2014-11-03.pdf. Commission Decision 14-10-046 in OP 16 provided the following direction to Commission staff and Program Administrators (PAs):

    “Pacific Gas and Electric Company, San Diego Gas and Electric Company, Southern California Edison Company and Marin Clean Energy shall file a Tier 2 Advice Letter within 60 days of this Decision reflecting the budget adjustments adopted herein, including recalculated Total Resource Cost and Program Administrator Cost tests that exceed a 1.0 threshold for 2015. This filing shall include updates to the contents of all files contained appendices A, B, C, and D of their respective 2015 funding proposals that reflect the budget and programmatic changes adopted herein as well as corrections to measure level inputs identified by Commission staff review as discussed herein. Commission staff shall provide a list of all such required measure input corrections via a notice to the service list within five days of the mailing date of this Decision.” [↑](#footnote-ref-17)