

2018 SCREW-IN LAMP SAVINGS METHODS DISPOSITION
California Public Utilities Commission, Energy Division
March 1, 2018

1. A-Lamp Baseline..... 2

2. Small Diameter Directional Lamps..... 2

3. Other Reflectors..... 2

4. Globes and Candelabra Lamp Shapes..... 3

5. Summary of Approved Savings Values effective 7/1/2018..... 4

1. A-Lamp Baseline

As of 1/1/2018, Title 20 requires all general service lamps (GSLs) manufactured for sale in California to have a minimum efficacy of 45 lumens/watt. This will eventually eliminate the availability of filament-based, incandescent, GSLs as inventories of these lamps manufactured prior to 1/1/2018 are gradually sold out of existing inventories. The change in Title 20 necessitates revision to the standard practice baseline for energy efficient lamps measures so that the baseline considers the likely choices for lamp purchases. Once incandescent lamps are no longer available, purchasers will have to choose between CFL and LED technologies only. Given the rapidly decreasing of prices for LEDs, it is unlikely that purchasers would continue to select CFLs over LEDs. Therefore, staff directs the baseline for A-lamps **and** spiral CFLs to be 25% CFL and 75% LED with no incandescent lamps in the baseline mix in place of the previous 25% halogen and 75% CFL baseline for lamps less than or equal to 90 lumens/watt and 55% CFLs, 20% LEDs and 25% halogens for lamps greater than 90 lumens/watt.

Minimum efficacy requirements set by Section 3.1 of the 26 May 2017 Screw-In Lamps Disposition still apply. Those are repeated below in Section 5.

Therefore, staff directs that all program administrators either remove the effected products from their offerings or update associated workpapers no later than 60 days prior to the effective date of this disposition, 7/1/2018.

2. Small Diameter Directional Lamps

As of 1/1/2018, Title 20 requires all small diameter directional lamps (SDDLs) manufactured for sale in California to meet one of the following criteria:

- Efficacy of at least 80 lumens per watt, or
- Efficacy of at least 70 lumens per watt and a compliance score (Efficacy + CRI) of at least 165

This baseline dictates LED technologies for SDDLs. Therefore staff directs that no program offerings be continued for MR16 and other screw-in SDDLs with diameters of 2.25 inches or less with an effective date of this disposition, 7/1/2018.

3. Other Reflectors

The disposition issued on December 11, 2017, incorrectly stated that the current baseline for reflectors as 50% CFLs and 50% incandescent lamps. The following is a correction:

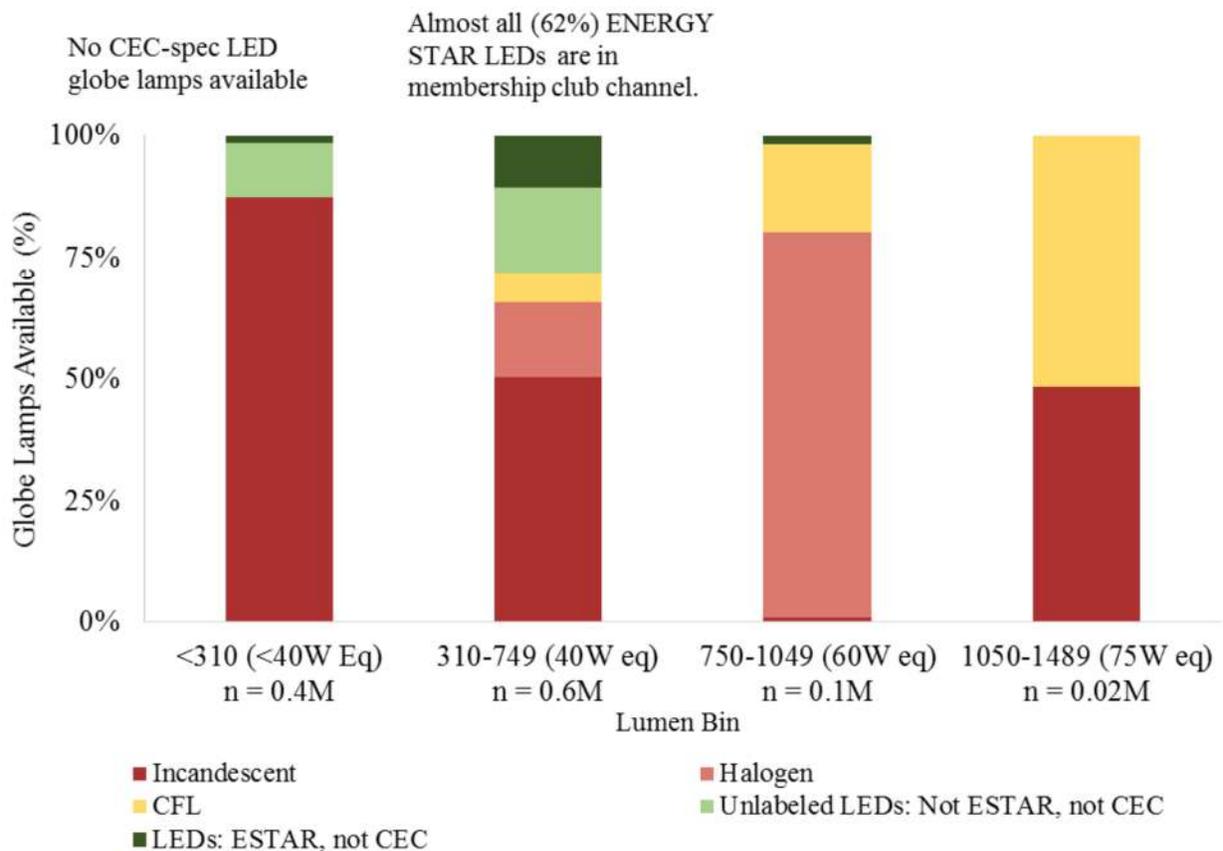
Current CPUC directed baseline for reflectors is comprised of 40% CFLs and 60% incandescent lamps. To account for naturally occurring increases in LED reflector lamps sales, CPUC staff directs the baseline for reflectors (except SDDLs described above) be revised to 10% CFL, 40% LED and 50% incandescent.

Therefore, staff directs that all program administrators update associated workpapers no later than 60 days prior to the effective date of this disposition, 7/1/2018.

4. Globes and Candelabra Lamp Shapes

The TRC Report includes a limited analysis of globe shape lamps and does not examine candelabra shaped lamps. TRC did not attempt to merge lamp availability and sales data to estimate an overall sales of globe lamps. Figure 9, below, from the TRC report shows that there are significant quantities of LED lamps available (approximately 30% of all lamps) in the 40W equivalent EISA bin. The current CPUC staff approved baseline for globe and candelabra shaped lamps is 100% incandescent. Given the increasing availability of LED lamps in these shapes, CPUC staff directs the baseline for globes and candelabras to be 5% CFL, 35% LED and 60% incandescent. Additionally, to account for the increased amount of LEDs in the baseline, CPUC staff directs the NTG for these lamps to be increased from the current value of 0.60 to 0.91, which is the approved value for all other screw-in LEDs.

Therefore, staff directs that all program administrators update associated workpapers no later than 60 days prior to the effective date of this disposition, 7/1/2018.



5. Summary of Approved Savings Values effective 7/1/2018

Table 1 - Approved LED A-Lamp Measure Definitions effective 1 July 2018

EISA Bin	LPW	ΔWatts
40	80	0.7
	90	0.8
	100	1.0
	110	1.1
	120	1.5
60	90	1.3
	100	1.3
	110	1.5
	120	1.8
75	90	1.5
	100	1.7
	110	1.9
	120	2.3
100	90	1.7
	100	2.0
	110	2.4
	120	2.6

Table 2 - Approved LED Wattage Reduction Ratio Values (except SDDLs and A-lamps) effective 1 July 2018

Lamp Shape	PAR20	PAR30	PAR38	R/BR			Candelabra	Globe		Can Retrofit
				<11W	>=11W, <14W	>=14W		<3W	>=3W	
Lamp Wattage	All	All	All	<11W	>=11W, <14W	>=14W	All	<3W	>=3W	All
DEER 2011 CFL WRR:	4.09	4.09	4.09	4.09	4.09	4.09	3.47	3.47	3.47	4.09
2012 100% Incandescent WRR:	5.79	4.22	4.70	7.51	5.92	5.35	7.35	7.47	4.94	4.22
2012 Incandescent %:	75%	75%	75%	75%	75%	75%	100%	100%	100%	75%
2012 CFL %:	25%	25%	25%	25%	25%	25%	0%	0%	0%	25%
2012 LED %:	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2012 Approved Ex Ante WRR:	4.70	3.42	3.81	6.09	4.80	4.34	7.35	7.47	4.94	3.42
2017 Incandescent %:	60%	60%	60%	60%	60%	60%	100%	100%	100%	75%
2017 CFL %:	40%	40%	40%	40%	40%	40%	0%	0%	0%	25%
2017 LED %:	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2017 Approved Ex Ante WRR:	4.04	2.94	3.28	5.24	4.13	3.73	7.35	7.47	4.94	3.42
2018 Incandescent %:	50%	50%	50%	50%	50%	50%	60%	60%	60%	50%
2018 CFL %:	10%	10%	10%	10%	10%	10%	5%	5%	5%	10%
2018 LED %:	40%	40%	40%	40%	40%	40%	35%	35%	35%	40%
2018 Approved WRR:	3.21	2.34	2.60	4.17	3.28	2.97	4.61	4.68	3.10	2.34
Gross Savings Change, 2017=>2018:	-27.3%	-31.1%	-29.5%	-25.3%	-27.1%	-28.0%	-43.2%	-43.1%	-46.8%	-44.7%
2017 Approved NTG:	0.91	0.91	0.91	0.91	0.91	0.91	0.60	0.60	0.60	0.60
2018 Approved NTG:	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Net Savings Change, 2017=>2018:	-27.3%	-31.1%	-29.5%	-25.3%	-27.1%	-28.0%	-13.8%	-13.7%	-19.3%	-16.1%

5.1. Program Minimum Efficacy Requirements

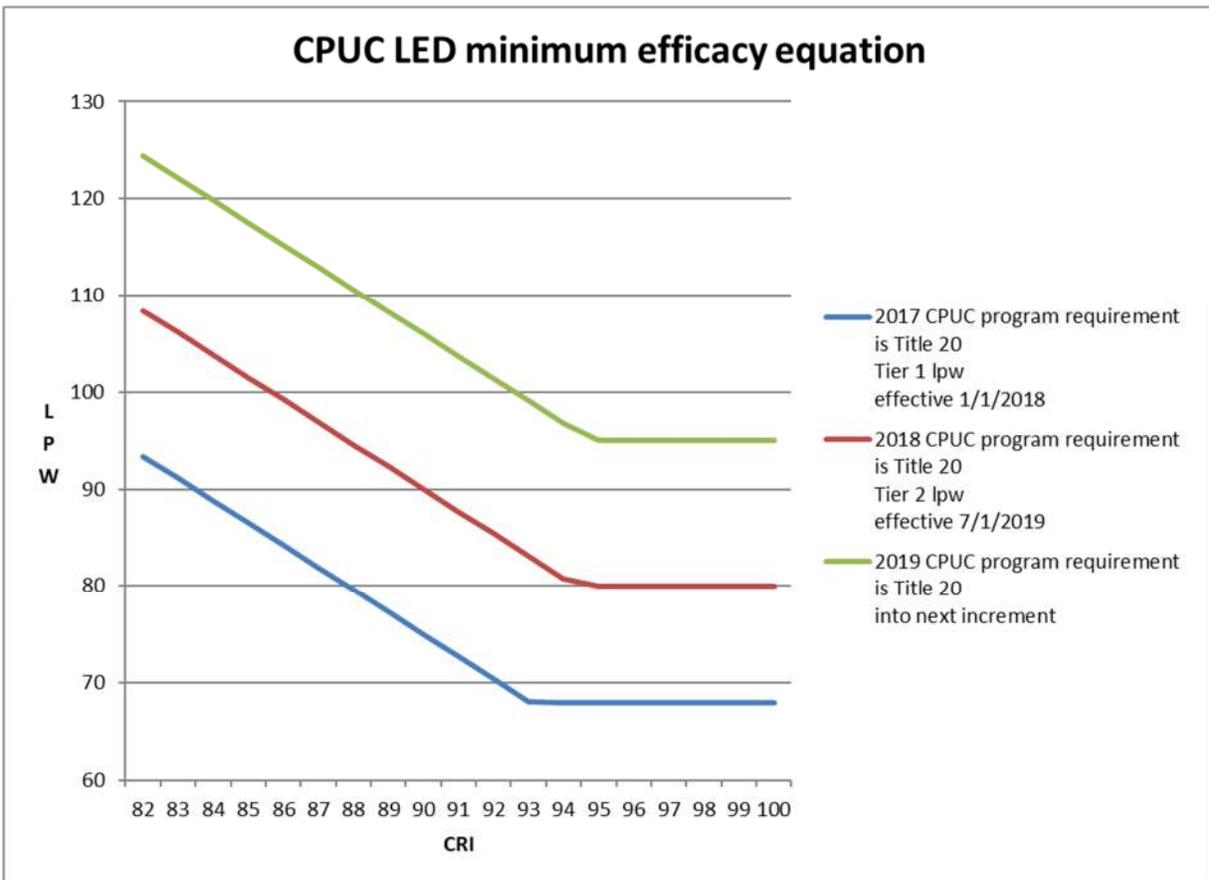
- **Effective 1/1/2018**, the CPUC will adopt the T20 2019 efficacy relationship for 2018 as minimum efficacy requirement for incentive payment.
- **Effective 1/1/2019**, the CPUC will adopt for 2019 a minimum efficacy requirement for incentive payment based on a linear extrapolation from the T20 2019 relationship.

Table 3 and Figure 1 show the relationship between CRI and efficacy.

Table 3 - Minimum Efficacy Requirement Relation to CRI

Minimum CPUC program efficacy (LPW) requirement by CRI effective:		
	1/1/2018: The CEC Title 20 Tier 2 requirements effective 7/1/2019	1/1/2019: CEC Title 20 requirements extrapolated into next increment
82	108.4	124.4
83	106.1	122.1
84	103.8	119.8
85	101.5	117.5
86	99.2	115.2
87	96.9	112.9
88	94.6	110.6
89	92.3	108.3
90	90	106
91	87.7	103.7
92	85.4	101.4
93	83.1	99.1
94	80.8	96.8
95	80	95
96	80	95
97	80	95
98	80	95
99	80	95
100	80	95

Figure 1 - Minimum Efficacy Requirement Relation to CRI



Additionally, the minimum efficacy requirements will be based upon the EISA bin as itemized below rather than a single value for all lamps.

- Minimum efficacy requirements for 2018:
 - EISA 40w: 80 lpw
 - EISA 60w: 90 lpw
 - EISA 75w and 100w: 90 lpw
- Minimum efficacy requirements for 2019:
 - EISA 40w: 95 lpw
 - EISA 60w: 100 lpw
 - EISA 75w and 100w: 110 lpw