

Lighting Update Presentation



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MARCH 2019

Overview

2020 IOU Final Measure List

No.	Measure Name	Update
4.26	LED, MR	Energy Independence and Security Act (EISA) Screw-in Lamp; GSL definition increases to 45 LPW (no compliant halogen or incandescent lamps available)
4.27	LED, PAR*	
4.28	LED, Candelabra*	
4.29	LED, Globe*	
4.30	LED, A-Lamp	
4.31	LED, Recessed Downlight Kit*	
4.32	LED, R or BR*	<i>* May be viable measures if specific GSL lamps are not part of narrower definition of the standard</i>
4.17	LED, Exterior Wallpack	LED considered Industry Standard Practice
4.22	LED, Landscape	
4.48	LED for Walk-in Cooler or Freezer	
4.51	LED for Pool or Spa	
4.16	LED, Interior Downlight Fixture	SCE to update Offerings and Peak kW; Measure unlikely
4.20	LED, Street Light	SCE has a limited scope workpaper planned (until 2020)
4.36	LED, Tube	SCE to update Offerings
4.19	LED, Troffer	PG&E has a workpaper ready now
4.18	LED, High or Low Bay	PG&E to update baseline to 100% LED for 2020
4.55	LED Parking Garage Lights	

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Lighting Update

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- Screw-in Lamps

- General Service Lamps (GSL) definition by DOE
- Energy Independence & Security Act (EISA) baseline increases to 45 lumens/watt effective 1/1/2020
 - ✦ No halogen or incandescent lamps can meet this standard
 - ✦ CFLs can meet the standard but are losing share to LEDs based on light quality, reliability and price.
- Some legal challenges exist to the 45 LPW standard
 - ✦ If Federal code happens, CEC will adopt
 - ✦ If Federal codes does not occur, *tbd...*
 - ✦ Likely that this or a higher standard will be adopted

- Results

- Screw-in Lamps will be retired from deemed measures

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- Offering (WPs Reviewed: PGECOLTG179-R6)
 - Offerings:
 - ✦ Luminaires (new fixture) or Retrofit kits
 - ✦ Troffer (2,200 Lm – 6,500 Lm) or Linear Ambient ($\leq 6,500$ Lm) Categories
 - Cost, wattage and savings are all in units of kilolumen
 - Building Types: 24 NonRes (Not: OTR) / 1 Res (Multifamily-Common Area)
 - Measure Application Type: NR (Normal Replacement)
 - Climate Zone: CZ01 – CZ16
 - Residential Area: Common (Not: In-Dwelling)
 - Delivery: DnDeemed, UpDeemed, DnDeemDI
- Stage 1 Issues
 - Energy Baseline: Blended 10.6 W (95 LPW)
 - ✦ 0% Fluorescent
 - ✦ 33% TLED, 85.2 LPW efficacy, 11.7 W
 - ✦ 67% LED, 100 LPW efficacy, 10.0 W
 - Energy Measure:
 - ✦ Tier 1: 125 LPW, 8.0 W
 - ✦ Tier 2: 140 LPW, 7.1 W
 - *DEER 2020 interactive effects*
 - Cost Baseline (33% TLED; 67% LED) – source distributor catalogs and websites
 - Cost Measure – source distributor catalogs and websites

Input Consensus –

4.19 - LED Ambient Commercial Fixtures and Retrofit Kits

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• Measure Permutations

		Measure Data Field			
Measure Data Field	Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	NR	NC,ROB	RobNc,ER	No Value	No Value
BldgType	Com,Sun,Asm,ECC,EPr,ERC,ES e,EUn,Gro,Gst,Hsp,Htl,MBT, MLI,Mtl,Nrs,Ofl,Ofs,RFF,RSD, Rt3,RtL,RtS,SCn,WRF,MFm	SUn,Asm,Com,ECC,EPr,ERC, ESe,EUn,Gro,Hsp,Htl,MBT,M LI,Mtl,Nrs,Ofl,Ofs,RFF,RSD,R t3,RtL,RtS,SCn,WRF,MFm	EPr,ERC,ESe	SUn,Asm,Com,ECC,EUn,Gro, Hsp,Htl,MBT,MLI,Mtl,Nrs,Of L,Ofs,RFF,RSD,Rt3,RtL,RtS,S CnWRF	No Value
BldgVintage	Ex	Ex,New	Any	Ex	No Value
BldgLoc	CZ01,CZ02,CZ03,CZ04,CZ05, CZ06,CZ07,CZ08,CZ09,CZ10, CZ11,CZ12,CZ13,CZ14,CZ15, CZ16, IOU	IOU	CZ06,CZ08,CZ09,CZ10,CZ13, CZ14,CZ15,CZ16	CZ06,CZ07,CZ08,CZ10,CZ14, CZ15,IOU	No Value
NormUnit	KiloLumen	KiloLumen	Fixture	KiloLumen	No Value
EUL ID	ILtg-Com-LED-50000hr+16yr ILtg-Res-LED-50000hr+16yr	ILtg-Com-LED-50000hr+16yr ILtg-Res-LED-50000hr+16yr	ILtg-Com-LED-50000hr	ILtg-Com-LED-50000hr+16yr	No Value
RUL ID	N/A	(blank)	ILtg-Lfluor-fix	No Value	No Value
NTGR	Com-InHB-Ltg-LEDFixt	ET-Default All-Default<=2yrs Com-Default>2yrs Res-Default>2	ET-Default Com-Default>2yrs	No Value	No Value
DeliveryType	DnDeemed, UpDeemed, DnDeemDI	DirInstall PreRebDown PreRebUp	DirInstall NonUpStrm	No Value	No Value
GSIA	Def-GSIA	Def-GSIA	Def-GSIA	No Value	No Value
Electric Load Shape	DEER:Indoor_Non-CFL_Ltg	PGE:DEER:Com:Indoor_Non- CFL_Ltg	SCE:NON_RES:DEER:Indoor_ Non-CFL_Ltg	SDGE:DEER:Com:Indoor_No n-CFL_Ltg	No Value
Gas Load Shape	Annual	Annual	Annual	Annual	No Value
Sector	Com, Res	Com, Res	Any, Com	No Value	No Value
PA/POU	Any				
BldgHVAC	cWtd, rWtd	cWtd, rWtd	Any	Any	No Value
HOU					
IE Factor	TRUE	No value	TRUE	No value	
IETableName	Com-InLtg-LF	(blank)	Com-InLtg-LF		
Use Category	Lighting	Lighting	Lighting	Lighting	No Value
SubUseCategory	InGen, InCommon	InGen, InCommon	InGen	InGen	No Value
TechGroup	Ltg_Fixture	Ltg_Fixture	Ltg_Fixture	Ltg_Fixture	No Value
TechType	LED_fixt	LED_fixt	LED_fixt	LED_fixt	No Value
Cost Adjustment Type	None	None	EL50	No value	No Value
EnImpCalcType	Standard	(blank)	Standard	Standard	No Value
MeasImpactType	Deem-WP	IOU-Deemed	Standard	Deemed	No Value

- Offering (WPs Reviewed: PGECOLTG176-R4)

- Offerings:

- ✦ Low-Bay (≤ 20 ft ceilings) and High-Bay (> 20 ft ceilings)
 - ✦ Changed to lumen bins (previously wattage bins)

- Normalizing Unit: per Fixture

- Building Types: 24 NonRes (Not: OTR)

- Measure Application Type: NR (Normal Replacement)

- Climate Zone: IOU Climate Zone

- Delivery: DnDeemed, UpDeemed, DnDeemDI

Pending...
Not affirming yet

- Stage 1 Issues

- Energy Baseline: (next slide)

- ✦ Upgrade scenarios: (1) luminaire replacement/retrofit kit upgrade or (2) upgrade to TLEDs
 - ✦ 25th percentile of LightingFacts efficacy

- Energy Measure Case

- ✦ Tier 1 – 50th percentile of LightingFacts efficacy (110-125 LPW)
 - ✦ Tier 2 – 75th percentile of LightingFacts efficacy (130-135 LPW)

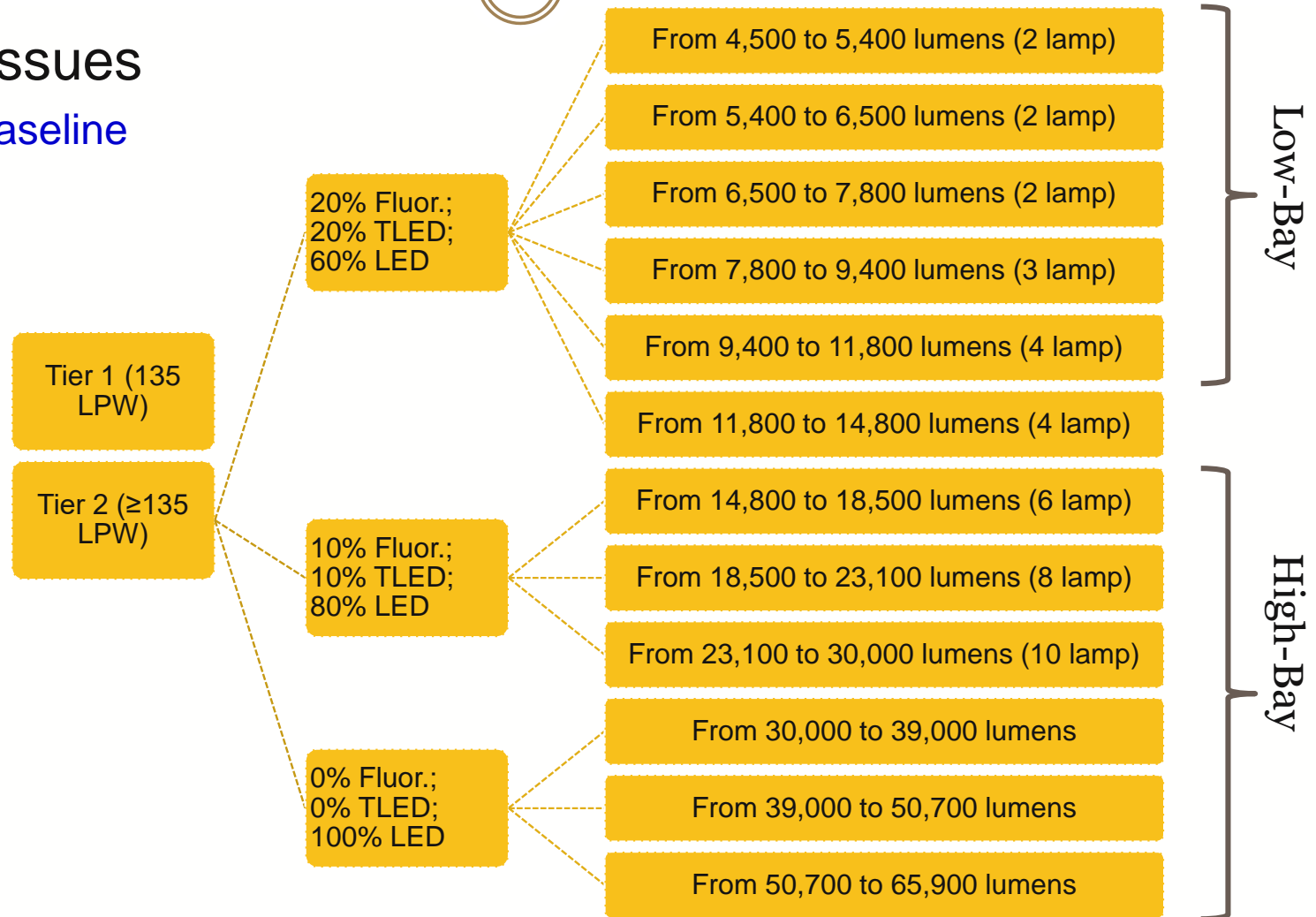
Measure Consensus

4.18 - LED High-Bay and Low-Bay Fixtures

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- Stage 1 Issues

- Energy Baseline



Measure Consensus

4.55 - LED Outdoor Parking Garage

Pending...
Not affirming yet



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- Offering (WPs Reviewed: PGECOLTG151-R9)
 - Offerings:
 - ✦ Parking garages only
 - ✦ Changed to lumen bins (previously wattage bins)
 - Normalizing Unit: per Fixture
 - Building Types: Any
 - Measure Application Type: NR (Normal Replacement)
 - Climate Zone: Any
 - Delivery: DnDeemed, DnDeemDI
- Stage 1 Issues
 - Energy Baseline: (next slide)
 - ✦ Upgrade scenarios: (1) luminaire replacement/retrofit kit upgrade or (2) upgrade to TLEDs
 - ✦ 25th percentile of LightingFacts efficacy
 - Energy Measure Case (Tier 1 – 120 LPW)
 - Zonal Lumen requirement
 - Lumen Bins versus Wattage Bins

Measure Consensus

4.55 - LED Outdoor Parking Garage

- Stage 1 Issues

- Energy Baseline: (next slide)

- ✦ Upgrade scenarios: (1) luminaire replacement/retrofit kit upgrade or (2) upgrade to TLEDs
 - ✦ 25th percentile efficacy

Workpaper version	Metal Halide Base Case	Linear Fluorescent Base Case	LED Luminaire Base Case	TLED Base Case
2018 Interim Solution (R8)	20%	20%	60%	0%
2019 workpaper (R9)	20%	20%	30%	30%
2020 workpaper				

- ✦ Light output values to match/correlate lumen output

Fixture Light Source	Fixture Eff	Zonal Lumens	Lumen Maintenance
LED	100%	33%	80.30%
TLED	85%	Same as LED	Same as LED
Fluorescent	71%	25%	91%
Metal Halide	73%	23%	58% ¹⁹

Back-up Slides

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