

Proposal Summary



2022 California Energy Code (Title 24, Part 6)

Outdoor Lighting Sources – Nonresidential Lighting Zone Reclassification

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Introduction

The document summarizes proposed revisions to the California Energy Code (Title 24, Part 6) that will be discussed during Round 2 of the utility-sponsored stakeholder meetings on March 5, 2020. The Statewide Utility Codes and Standards Enhancement (CASE) Team is seeking input and feedback. Please share comments by email to info@title24stakeholders.com.

Measure Description

The outdoor lighting zone reclassification measure is proposed to align the California lighting zones with current industry standards employed across North America. This is a prescriptive submeasure that will impact new construction and alterations, and additions in California.¹ Currently, lighting zones in California are classified with a United States (U.S.) Census-based approach which dictates lighting zone using the population-based classification of an area as "rural" or "urban". This has resulted in over lighting many areas throughout the state. This proposal revisits the current population-based approach and aims to provide more discretized lighting zone applications based on the population density within each zip code; this will save energy throughout California while minimizing sky glow² and light trespass.³ No change to the lighting power allowances (LPAs) associated with the current lighting zones has been proposed, this submeasure simply seeks to reclassify existing areas into more appropriate lighting zones. No new field verification or acceptance tests beyond those that currently exist will be required, and no new system or technology requirements will be required.

¹ Compliance with Title 24, Part 6 includes mandatory, prescriptive, and performance pathways; certain sections in Title 24, Part 6 are mandatory to achieve compliance. For non-mandatory sections, users can choose to follow the performance or prescriptive pathway. Specifically, the prescriptive pathway has some flexibility, but essentially prescribes minimum performance and conditions that a building system must meet in order to comply. The performance pathway allows greater flexibility because users simply need to design a building that meets a certain energy budget. However, the performance pathway is not applicable to outdoor lighting.

² Sky glow is additional brightness in the night sky as a result of light from upward facing electric light sources or reflections off of airborne particulates.

<https://www.lrc.rpi.edu/programs/nlpiip/lightinganswers/lightpollution/skyglow.asp>

³ Light trespass is the light from electric sources that is cast where it is unwanted, often due to improper luminaire placement or shielding. <https://www.lrc.rpi.edu/programs/nlpiip/lightinganswers/lightpollution/lightTrespass.asp>



Draft Code Language

The proposed changes to the Standards and Reference Appendices are provided below. Changes to the 2019 documents are marked with red underlining (new language) and ~~strikethroughs~~ (deletions).

Standards

The Statewide CASE Team does not expect a change to the format of Table 10-114 but expects the Lighting Zone (LZ) definitions to be amended. LZ1 is amended such that the move up to LZ2 would be primarily for high nighttime use, especially in the case of business parks. LZ2 now references the US Census term urban clusters, whereas the former LZ2 definition referenced rural areas. LZ2 additionally incorporates language for multifamily housing and mixed-use residential neighborhoods as a default location. LZ3 now incorporates language for high intensity commercial corridors, entertainment centers, and heavy industrial zones as default locations.

SECTION 10-114 – DETERMINATION OF OUTDOOR LIGHTING ZONES AND ADMINISTRATIVE RULES FOR USE

This section establishes rules for implementing outdoor lighting zones to show compliance with Section 140.7 of Title 24, California Code of Regulations, Part 6.

- (a) **Lighting Zones.** Exterior lighting allowances in California vary by Lighting Zones (LZ).
- (b) **Lighting Zone Characteristics.** ~~Error! Reference source not found.~~ specifies the relative ambient illumination level and the statewide default location for each lighting zone.
- (c) **Amending the Lighting Zone Designation.** A local jurisdiction may officially adopt changes to the lighting zone designation of an area by following a public process that allows for formal public notification, review, and comment about the proposed change. The local jurisdiction may determine areas where Lighting Zone 4 is applicable and may increase or decrease the lighting zones for areas that are in State Default Lighting Zones 1, 2 and 3, as specified in ~~Error! Reference source not found.~~.
- (d) **Commission Notification, Amended Outdoor Lighting Zone Designation.** Local jurisdictions who adopt changes to the State Default Lighting Zones shall notify the Commission by providing the following materials to the Executive Director:
 1. A detailed specification of the boundaries of the adopted Lighting Zones, consisting of the county name, the city name if any, the zip code(s) of the re designated areas, and a description of the physical boundaries within each zip code;
 2. A description of the public process that was conducted in adopting the Lighting Zone changes; and
 3. An explanation of how the adopted Lighting Zone changes are consistent with the specifications of Section 10-114.
- (e) The Commission shall have the authority to not allow Lighting Zone changes which the Commission finds to be inconsistent with the specifications of Section 10-114.

TABLE 10-114-A LIGHTING ZONE CHARACTERISTICS AND RULES FOR AMENDMENTS BY LOCAL JURISDICTIONS

Zone	Ambient Illumination	Statewide Default Location	Moving Up to Higher Zones	Moving Down to Lower Zones
LZ0	Very Low	Undeveloped areas of government designated parks, recreation areas, and wildlife preserves.	Undeveloped areas of government designated parks, recreation areas, and wildlife preserves can be designated as LZ1 or LZ2 if they are contained within such a zone.	Not applicable
LZ1	Low	<u>Single or dual family residential areas, parks, and agricultural zone districts.</u> Developed portion of government designated parks, recreation areas, and wildlife preserves. Those that are wholly contained within a higher lighting zone may be considered by the local government as part of that lighting zone	<u>Business parks located in a residential neighborhood and rural town centers, as defined by the 2010 U.S. Census, can be designed as LZ2 if they have high anticipated nighttime use.</u> Developed portion of a government designated park, recreation area, or wildlife preserve, can be designated as LZ2 or LZ3 if they are contained within such a zone.	Not applicable.
LZ2	Moderate	<u>Multifamily housing, mixed use residential neighborhoods, and light commercial business districts or industrial zoning districts, urban clusters</u> Rural areas, as defined by the 2010 U.S. Census.	Special districts within a default LZ2 zone may be designated as LZ3 or LZ4 by a local jurisdiction. Examples include special commercial districts or areas with special security considerations located within a <u>mixed use residential rural</u> area.	Special districts and government designated parks within a default LZ2 zone maybe designated as LZ1 by the local jurisdiction for lower illumination standards, without any size limits.
LZ3	Moderately High	<u>High intensity commercial corridors, entertainment centers, heavy industrial or manufacturing zone districts,</u> urban areas as defined by the 2010 U.S. Census.	Special districts within a default LZ3 may be designated as a LZ4 by local jurisdiction for high intensity nighttime use, such as entertainment or commercial districts or areas with special security considerations requiring very high light levels.	Special districts and government designated parks within a default LZ3 zone may be designated as LZ1 or LZ2 by the local jurisdiction, without any size limits.
LZ4	High	None.	Not applicable.	Not applicable.

NOTE: Authority: Sections 25402 and 25402.1, Public Resources Code. Reference: Sections 25007, 25008, 25218.5, 25310, 25402, 25402.1, 25402.4, 25402.5, 25402.8, and 25943, Public Resources Code.