

## DOCKETED

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*Additional submitted attachment is included below.*

**From:** Pete Strasser  
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**Subject:** Docket No. 17-BSTD-02  
**Date:** Thursday, March 15, 2018 10:38:23 AM

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To the California Energy Commission,

The International Dark Sky Association (IDA) thanks you for giving us the opportunity to comment on the 45 Day Express Terms for the 2019 Title 24, part 6 building energy efficiency standards. IDA desires to preserve and protect the nighttime environment along with California's and the World's heritage of dark skies through environmentally responsible outdoor lighting. The proposed measures in the 2019 Title 24, part 6 standards help move California in the right direction to reduce the impact outdoor lighting on the environment, including reducing light pollution, sky glow, visual glare, and negative circadian impacts on flora and fauna.

We do not support of the California Energy Commissions proposed standards for Section 130.2(b) *Luminaire Cutoff Requirements* and Section 130.2(c) *Controls for Outdoor Lighting*. We are asking the California Energy Commission to assure the updated standards for Section 130.2(b) *Luminaire Cutoff Requirements* and Section 130.2(c) *Controls for Outdoor Lighting* are more stringent than they were in the 2016 building efficiency standards.

### **Section 130.2(b) *Luminaire Cutoff Requirements***

Title 24 remains an authoritative piece of legislation fundamentally addressing energy conservation. The function of a product is necessary to formulate such energy consumption guidelines and product development, and this significantly impacts design. This brings us to the function of the lighting fixtures, or luminaires, and at the center of this is The Task. What is the product supposed to do? With lighting, this distills down to 3 very simple things; light where you need it, when you need it, in the amount necessary, and no more. All else is waste, both fiscally and of resources. The function of streetlights, pathway lights, and other areas of ingress and egress, is to provide illumination while following the rules of The Task.

An energy-based regulatory body cannot sanction waste by design. If light is not directed to the task, it is waste empirically, pure and simple. Allowing up light, meaning emitting light in a direction not in accordance with The Task, is doing just that. There is no energy allowance or product design and use to justify light not directed to the task at hand, and to do so is completely counter to the word and spirit of Title 24. For these reasons, no luminaire of a BUG "U" rating of 2 or higher should be permitted. There exists some up light measured in photometric tests from even the smallest support brackets that can give an up light rating of 1. For this reason the value of 2 or higher should be restricted.

### **Section 130.2(c) *Controls for Outdoor Lighting***

The 2016 Title 24 outdoor lighting controls standards had three levels of control.

1. Control capable of turning lights off during the day. Applicable to all lights.
2. Control capable of being scheduled lights. Applicable to all lights
3. Control that reduces lighting power between 40% and 90% in response to the areas vacated of occupants. Applicable to lights mounted less than 24 feet, and not exempted by exceptions 1-4 to Section 130.2(c)3.

The 45 Day Express Terms for Section 130.2(c), would allow for those outdoor luminaires where vacancy controls are required, to control based on daylight and vacancy and not install scheduling controls as has been required since the 2013 standards. This saves less energy than a lighting system that is controlled by all three control types including a scheduling control.

We recommend that the Commission modify this section to restore the stringency of the building energy code by requiring all three controls (daytime, scheduling and vacancy) for those applications that have required vacancy controls in the past. We support increased controls innovation as long as it provides more energy savings. Thus we support the exceptions that would allow advanced controls such as bi-level motion controls that have different unoccupied dimming levels by time of night or with respect to elapsed time since motion was last detected. The Statewide Codes and Standards program has submitted a letter dated February 20<sup>th</sup> with suggested outdoor lighting controls code language that we support. <sup>[1]</sup> We have repeated the proposed code language here for clarity.

**(c) Controls for Outdoor Lighting.** Outdoor lighting controls shall be installed that meet all of the following applicable requirements

**EXCEPTION 1 to Section 130.2(c):** Outdoor lighting not permitted by a health or life safety statute, ordinance, or regulation to be turned OFF.

**EXCEPTION 2 to Section 130.2(c):** Lighting in tunnels required to be illuminated 24 hours per day and 365 days per year.

□ **1. Daylight**

**Availability.** All installed outdoor lighting shall be controlled by a photo control, astronomical time-switch control, or other control capable of automatically shutting OFF the outdoor lighting when daylight is available.

**2. Scheduling Control.** All installed outdoor lighting shall be independently controlled from other electrical loads by an automatic scheduling control. During normally scheduled unoccupied hours, power shall be reduced by at least 50 percent.

**Exception 1 to Section 130.1(c)2:** Lighting power reduction of controlled lighting may be overridden to normal operating power when occupancy is sensed by a control compliant with Section 130.2(c)3.

**Exception 2 to Section 130.1(c)2:** Scheduling controls are not required if lighting is controlled by controls compliant with Section 130.2(c)3 and that reduce lighting power between 50 and 75 percent when no activity has been detected in the area illuminated by the controlled luminaires for a time no longer than 15 minutes and reduce lighting power by at least 75% when no activity has been detected no longer than 60 minutes.

**3. Areas where Motion Sensing Controls are required.** Luminaires that are providing parking lot general hardscape lighting, outdoor sales lot lighting, vehicle service station hardscape lighting, or vehicle service station canopy lighting and where the bottom of the luminaire is mounted 24 feet or less above the ground shall be controlled by motion sensing controls or other controls that react to the area being vacated of occupants and meets all of the following requirements:

A. The lighting power of each luminaire shall be automatically reduced by at least 50 percent or OFF when no activity has been detected in the area illuminated by the controlled luminaires for a time no longer than 15 minutes.

B. Shall restore lighting to normal operating power when the area becomes occupied; and

C. No more than ~~800~~ 1,500 watts of lighting power shall be activated in a single motion sensing control zone, and

D. The lighting system shall be capable of being configured to automatically reduce power of each luminaire by at least 50 percent, but not exceeding 90 percent without turning the luminaires OFF

**EXCEPTION 1 to Section 130.2(c)3:** Luminaires with a maximum rated wattage of 40 watts each;

**EXCEPTION 2 to Section 130.2(c)3:** Applications listed as Exceptions to Section 140.7(a) shall not be required to meet the requirements of Section 130.2(c)3.

**EXCEPTION 3 to Section 130.2(c)3:** Luminaires located where trees or other obstructions block motion sensing between the luminaire and the area illuminated by the luminaire.

**4. Timed Manual Override.** Timed manual overrides are not required, but shall be allowed to override motion or scheduling controls for a duration not to exceed two hours. No more than 1,800 watts may be controlled per manual override control.

In addition to maintaining the stringency of the existing outdoor lighting controls requirements, the proposed exceptions will allow the use of advanced controls which have the capability of saving 6 GWh/yr statewide. These advanced controls would further reduce outdoor lighting late at night when there is no activity; this reduces sky glow for all of us who enjoy seeing the stars at night and reduces the circadian disruption of flora and fauna.

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[1] [http://docketpublic.energy.ca.gov/PublicDocuments/17-BSTD-02/TN222626\\_20180220T221554\\_Statewide\\_Utility\\_Codes\\_and\\_Standards\\_Team\\_Comments\\_45Day\\_Comme.pdf](http://docketpublic.energy.ca.gov/PublicDocuments/17-BSTD-02/TN222626_20180220T221554_Statewide_Utility_Codes_and_Standards_Team_Comments_45Day_Comme.pdf)

Thank you for your consideration.

Pete Strasser

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**Pete Strasser** Technical Director  
International Dark-Sky Association

*"Though my soul may set in darkness, it will rise in perfect light;  
I have loved the stars too fondly to be fearful of the night."*

-From "The Old Astronomer" by Sarah Williams

"Your support is crucial to our night skies. [Please give today.](#)"

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