

**DOCKETED**

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*Comment Received From: Jon McHugh  
Submitted On: 5/31/2021  
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**Exception 4 to Section 1302(c)3 and 1605(c)2C would increase LCC of standards + 12 GWhyr**

*Additional submitted attachment is included below.*



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California Energy Commission  
Docket Unit, MS-4  
Docket No. 21-BSTD-01  
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Sacramento, California 95814-5512  
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**Re: 21-BSTD-01 2022 Energy Code Update Rulemaking**

**Exception 4 to Section 130.2(c)3 and Exception 4 to Section 160.5(c)2C would increase life cycle cost of standards and increase energy consumption by 12 GWh/yr**

Most of the updates to the 2022 Energy Code (Title 24, Part 6) have been carefully vetted through several stakeholder meetings and pre-rulemaking workshops, with multiple public opportunities to comment and suggest revisions. This process ensures that changes to the Energy Code benefit from various viewpoints.

However, the added exception 4 to Section 130.2(c) and exception 4 to Section 160.5(c)2C, have not benefitted from the same level of scrutiny. These exceptions were not discussed during earlier stakeholder or pre-rulemaking meetings or in the Express Terms released earlier this year. The changes appear publicly for the first time in the 45-day Express Terms and were mentioned briefly on slide 73 of the recent staff presentation.<sup>1</sup>

Section 130.2(c)3 is a requirement for motion sensing control of outdoor lighting for luminaires rated greater than 40 Watts and mounted 24 feet or lower that are serving areas other than Building Façade, Ornamental Hardscape, Outdoor Dining, or Outdoor Sales Frontage lighting. The staff proposal would essentially double the wattage of exempted parking lot luminaires from the current 40 watts to 78 watts.

The same requirements and new exception were also duplicated in the new multifamily portion of the standard in Section 160.5(c)2C.

In the Initial Statement of Reasons (ISOR), Energy Commission staff indicated that the proposed change was necessary to ensure cost-effectiveness.<sup>2</sup> Neither the ISOR, nor the information presented at the May 24<sup>th</sup> staff presentation, included detailed information on the cost of the motion controls or their life cycle savings.

In contrast, during the 2019 Title 24, part 6 rulemaking, the costs, the savings and the cost-effectiveness of outdoor lighting motion controls was thoroughly vetted with two utility sponsored public stakeholder meetings, the Energy Commission public process, a draft CASE code change proposal report and a final CASE code change report.<sup>3</sup>

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<sup>1</sup> *May 24, 2021 Staff Presentation at the Lead Commissioner Hearing*

<https://efiling.energy.ca.gov/GetDocument.aspx?tn=237973&DocumentContentId=71219>

<sup>2</sup> Page 62, TN #: 237716, *Initial Statement of Reasons 2022 Energy Code Proposed Changes*,

<https://efiling.energy.ca.gov/GetDocument.aspx?tn=237716&DocumentContentId=70938>

<sup>3</sup> <https://title24stakeholders.com/measures/cycle-2019/outdoor-controls/>



The 2016 version of Title 24, Part 6 included the following luminaire wattage exception to the outdoor lighting motion sensing control requirements:

***EXCEPTION 3 to Section 130.2(c)3:***, *Outdoor lighting, where luminaire rated wattage is determined in accordance with Section 130.0(c), and which meet one of the following conditions:*

- A. Pole-mounted luminaires each with a maximum rated wattage of 75 watts; or*
- B. Non-pole mounted luminaires with a maximum rated wattage of 30 watts each; or*
- C. Linear lighting with a maximum wattage of 4 watts per linear foot of luminaire.*

The CASE team evaluated whether Exception 3 could be simplified by collapsing the threshold to a single greater than 30 watt threshold wattage and found that for all outdoor parking lot applications, motion controls were cost effective for all parking lot luminaires with a wattage rating greater than 30 watts. Commission staff reviewed the proposal and adjusted the threshold upwards to 40 watts. There is a significant amount of information in the public record that indicates that the current 40-watt threshold is cost-effective and could even be lowered slightly to benefit from additional statewide energy savings. The statewide energy savings associated with decreasing the wattage of exempted lighting from those luminaires less than 75 watts to luminaires less than 30 watts was 12 GWH/yr for each year's new construction and retrofits. In reversing the 40-watt threshold requirement, and increasing even further to 78 watts, I am expecting that around 12 GWH/yr increased energy consumption would result.

One rationale for increasing the threshold to 78 watts is to align with ANSI/ASHRAE/IES 90.1-2019 and the 2021 version of IECC. There are benefits to aligning with national model codes when it brings additional energy savings and simplifies code requirements across state borders. However, in this case, where energy consumption would increase, I am not aware of any mandate in the Warren-Alquist Act or other state regulation that asks the Energy Commission to decrease stringency of California building codes to align with other codes. California's electricity rates are up to two times higher than the average US electricity rates that the ASHRAE 90.1 committee uses for evaluating the cost-effectiveness of code change proposals. What might be cost-effective in California might not be cost-effective for the ASHRAE model code.

Additionally, it is worth noting that California's bi-level motion-controlled lighting requirements preceded those in ASHRAE 90.1 and the ASHRAE 90.1 committee did not feel a similar compunction to align with California's standard. At the time, the 2013 Energy Code included a recently adopted requirement for motion-controlled lighting for luminaires greater than 75 watts.

With the information resulting for the Title 24 proceeding, I submitted a similar proposal as an amendment to ASHRAE 90.1 with the 75 watt threshold.<sup>4</sup> This proposal was modified to a 78 watt threshold, in response to a request to be inclusive of high intensity discharge luminaires with 75 watt lamps, for a luminaire wattage of 78 watts including ballast. When this ASHRAE analysis was conducted, I used a \$0.09/kWh US national electricity rate and an 8.8 scalar (present worth multiplier) and found that even a 70-watt luminaire could be cost-effectively controlled. Since that time, HID use in outdoor lighting has been effectively phased out by LEDs and advancing energy codes. Adjusting California's Energy Code to align with a requirement that was adjusted to include a legacy technology in a transitional time in the lighting industry does not seem well justified. Outdoor lighting is contributing to California's increase in demand for non-

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<sup>4</sup> Jon McHugh. Continuous Maintenance Proposal to ASHRAE 90.1-2010. Motion Controlled Parking Lighting. 11/4/2012. Note: this did not get adopted until ASHRAE 90.1-2016.



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May 31, 2021

renewable generation occurring after sunset. California's energy costs and economic evaluation criteria diverges widely from ASHRAE's.

For these compelling reasons, I recommend deleting the following when the 15-day Express terms for 2022 Energy Code are published:

- The newly added Exception 4 to Section 130.2(c)3, and
- Exception 4 to Section 160.5(c)2C.

These proposed changes are shown below with a double strikethrough:

On page 221 of the 45-day Express Terms delete Exception 4 to Section 130.2(c)3:

~~EXCEPTION 4 to Section 130.2(c)3: For parking lots, luminaires with a maximum rated wattage of 78 watts each are not required to have motion sensing controls.~~

On page 447 of the 45-day Express Terms delete Exception 4 to Section 160.5(c)2C :

~~EXCEPTION 4 to Section 160.5(c)2C: For parking lots, luminaires with a maximum rated wattage of 78 watts each are not required to have motion sensing controls.~~

Sincerely,

Jon McHugh, PE

Principal