

TO: IECC Appeals Board
FROM: Michael Jouaneh
DATE: February 5, 2024
RE: **Lutron Comments on 2024 IECC Appeal 23-02-BOMANMHC Demand Responsive Controls**

Clarifications and Counterarguments Regarding Demand Responsive Lighting Controls in the 2024 IECC-C

I am writing to shed light on the demand responsive (DR) lighting controls provision proposed for the 2024 International Energy Conservation Code Commercial (IECC-C) and address concerns raised in the appellant document titled "Appeal of provisions for Demand Responsive Controls in the 2024 draft IECC-C."

Why DR Lighting Controls Matter:

DR lighting controls play a crucial role in reducing energy costs, particularly peak demand charges, by intelligently managing loads during periods of peak electricity pricing or demand. Studies indicate that demand-responsive lighting can yield substantial savings of 30–50% in lighting power during peak periods (Newsham GR & Birt B. 2010. Demand-responsive lighting: a field study).

Advantages of DR Lighting Controls:

Unlike other building systems, lighting is exceptionally well-suited for demand response. It allows for gradual dimming during DR events, imperceptible to occupants in the initial 20-25%, resulting in significant energy savings. Moreover, post-DR events, lighting can swiftly return to previous levels, unlike cooling loads that require time to restore the space to its previous temperature.

Most notably, many networked lighting control (NLC) systems inherently possess automated demand response capabilities, eliminating the need for additional equipment.

Aligning with Proven Standards:

It is worth noting that the addition of demand responsive lighting will bring the IECC in line with California's requirements since the 2008 Title 24 Part 6.

Addressing Appellants' Concerns:

Claim 1 (No functionality):

Appellants argue that nearly one-third of electric utilities do not offer DR programs, making it impossible for HVAC, lighting, or service water heating equipment to function as intended. However, they omit the fact that the lighting DR provision includes an exception for projects in jurisdictions where no DR program is offered. The exception clearly states that buildings are exempt from installing a demand responsive lighting control system when a DR signal is not available from a controlling entity other than the owner.

Claim 2 (Cost):

Contrary to the appellants' claim regarding the cost of DR lighting controls, their cited range of \$6,927 to \$8,396 encompasses the design and installation of a complete lighting control system. The true incremental cost of upgrading from mandatory stand-alone lighting controls to a DR-capable lighting control system is substantially lower. Furthermore, if an NLC system is already in place, the additional cost to incorporate DR lighting functionality is effectively zero.

Claim 3 (Dwelling unit cost burden):

The appellants express concern about adding costs for water heater and lighting DR controls to dwelling units without utility DR programs, claiming a violation of the IECC's intent. However, they overlook the fact that DR lighting controls are not mandatory for dwelling units, as Group R occupancies are exempt from such requirements.

Claim 4 (Benefits for the EU not the building):

The appellants contend that the IECC should abstain from mandating demand response (DR) controls in areas with established DR programs, asserting that installing such controls primarily benefits electric utilities (EUs) rather than building owners. However, embracing the DR lighting control provision not only allows building owners to harness EU financial incentives for participating in DR programs but also enables them to capitalize on advantages such as reduced peak demand charges and lower electricity rates.

In regions with time-of-use electricity pricing, a DR-capable lighting control system empowers building owners to strategically adjust lighting loads during peak electricity pricing, even without a specific DR event or signal from the EU. This proactive approach enables building owners to achieve significant savings on electricity costs. Importantly, this dynamic isn't solely advantageous for EUs; it constitutes a direct and substantial financial benefit for the building owner.

Claim 5 (Simple equipment change to add DR later):

The appellants suggest that adding DR capabilities later is a simple matter for thermostats and water heaters, but fail to acknowledge the complexity of converting stand-alone lighting controls into a DR-capable system. Unlike HVAC systems, changing a thermostat is not equivalent to

retrofitting lighting controls. However, compliance with the DR lighting controls provision allows building owners to seamlessly integrate DR capabilities into existing lighting control systems, avoiding costly retrofits if they choose to participate in future DR programs.

Conclusion:

The appellant document is misleading, inaccurate, and fails to provide a comprehensive understanding of the proposed demand responsive lighting controls in the 2024 IECC-C. My comments aim to correct the record and highlight the importance of embracing DR lighting controls in energy codes for long-term benefits to the building owner.

Respectfully submitted,



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