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2028 Code Change Proposal Memo - Â§110-12(c) Demand Responsive Lighting Controls

Additional submitted attachment is included below.

Code Change Proposal Memo – 2028 Building Energy Efficiency Standards

Title:
Clarification of Automatic Demand Response (ADR) Lighting Control Behavior Under Pre-Event Dimmed Conditions

Code Section(s) Affected:
§110.12(c) — *Demand Responsive Lighting Controls*
Reference Appendix NA7.6.3 — *Demand Responsive Controls Acceptance Tests*

Building Types Affected:
Nonresidential (R-occupancies excepted)

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Date:
TBD (2026 Submission)

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1. Problem Statement

Under the current 2025 Title 24 Part 6 language in §110.12(c) and NA7.6.3, lighting controls are required to reduce lighting power in response to a demand response signal by at least 15 percent. However, the code does not explicitly define behavior when the controlled lighting is already operating below the event's target reduction level prior to the signal (e.g., due to occupancy-based dimming, daylighting response, or manual user reduction).

This ambiguity has led to inconsistent field performance and test results, where some systems *raise* lighting output to match the ADR setpoint rather than maintaining their current reduced state—resulting in temporary load increases that contradict the intent of load-shedding events.

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2. Objective

To establish clear operational criteria for ADR lighting systems, ensuring predictable performance and preventing upward power excursions during grid events. This will:

- Improve demand event reliability.
- Eliminate false "failures" during NA7.6.3 acceptance testing.
- Align Title 24 ADR performance with CEC and utility DR program intent.

3. Proposed Code Language

§110.12(c)4 – Demand Response Lighting Controls

During a Demand Response (DR) event, lighting control systems shall reduce lighting output per the required DR reduction, by 15–50 percent of full rated output.

If lighting is already below the DR target reduction level at the time the signal is initiated, the system shall not increase, or decrease output, and shall remain at the pre-event level.

EXCEPTION: Lighting control systems serving R-occupancies

Intent: To ensure lighting systems participating in Demand Response events provide predictable and non-regressive performance by preventing upward deviation in dimmed lighting zones while still ensuring compliance with required demand reduction targets.

NA7.6.3.2.1 Method 1: Illuminance Measurement.

C. Minimum output test:

3. Determine compliance:

    i. In each space, the illuminance in the demand response condition must not be less than, or more than the illuminance in the minimum output condition (but not turned off).

    EXCEPTION: In daylit spaces, or by occupants using manual controls the illuminance in the demand response condition may reduce below the minimum output condition.

NA7.6.3.2.2 Method 2: Current measurement.

C. Minimum output test

5. In each space, the electric current in the demand response condition must not be less than, or more than the electric current in the minimum output condition.

EXCEPTION: Circuits that supply power to enclosed spaces may reduce below the minimum output condition in daylit spaces, or by occupants using manual controls.

NA7.6.3.2.3 Method 3: Full facility current measurement.

C. Minimum output test:

5. The post-event current must not be less than, or more than the pre-event current in the minimum output condition.

EXCEPTION: Circuit panels that supply power to enclosed spaces may reduce below the minimum output condition in daylit spaces, or by occupants using manual controls.

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4. Justification and Rationale

This clarification provides consistency in system behavior during demand response events and aligns with the performance intent of §110.12(c) and NA7.6.3.
Without this language, ADR signals can inadvertently cause energy spikes or misinterpretations during compliance testing. The proposed language ensures systems behave logically:

- *If already dimmed below the ADR target, stay below.*
- *If higher than the ADR target, dim to meet the target.*

This provides verifiable, grid-supportive operation and predictable outcomes for both testing and actual demand events.

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5. Environmental and Economic Impact

- **Energy:** Ensures genuine demand reductions and prevents counterproductive increases in electrical demand during grid stress periods.

- **Economic:** No expected increase in compliance cost. May reduce commissioning and testing failures by providing clear criteria for acceptance. Per the Warren Alquist Act, because there may be an expected net decrease in project costs due to the measure, the measure is cost effective as long as the expected energy performance is at least as good as current practice as specified in the 2025 Title 24 Standards, which is anticipated to be true. In fact the measure is expected to produce a net decrease in energy consumption as detailed in this proposal.
- **Implementation:** No additional hardware requirements. Applies via firmware logic or control programming updates by manufacturers.

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6. Stakeholders

- CALCTP - California Advanced Lighting Control Training Program
- NLCAA – National Lighting Controls Association of America
- CEA - California Energy Alliance
- ETA - Electrical Training Alliance
- Utility Demand Response Administrators (IOUs)
- Lighting Control Manufacturers (e.g., WattStopper, Acuity, Lutron)

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7. Effective Date Recommendation

Adopted as part of the 2028 Code Cycle, effective January 1, 2029.

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8. Consideration for Readiness

High: This change proposal would clarify an issue existing under the 2025 Standards.