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June 8, 2015

VIA EMAIL ONLY

California Energy Commission
Attn: Docket 15-BSTD-01
Dockets Office, MS-4
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California Energy Commission

DOCKETED

15-BSTD-01

TN # 75899

JUN 08 2015

**Re: Docket No. 15-BSTD-01 - Adoption of 15 Day Language for the
2016 Building Energy Efficiency Standards - Opposition to
Proposed Lighting Retrofit Control and Acceptance Test
Exemptions - Section 141.0(b)(2) and Table 141.0-F**

Dear Mr. Shirakh:

On behalf of the California chapters of the National Electrical Contractors Association ("NECA"), the California International Brotherhood of Electrical Workers locals ("IBEW"), and the California State Labor Management Cooperation Committee for the International Brotherhood of Electrical Workers and the National Electrical Contractors Association ("LMCC"), I am writing to oppose the proposed amendments to Section 141.1(b)(2) and Table 141.0-F of the 2016 Building Energy Efficiency Standards that would weaken, rollback and water down current lighting control, lighting power and acceptance test requirements for alterations and modifications of indoor or outdoor luminaires in existing buildings. NECA, IBEW and the LMCC represent over a 1,000 contractors and over 30,000 electricians who install lighting systems and lighting controls in California.

NECA, IBEW and the LMCC strongly support to the Governor's goal of doubling the efficiency of existing buildings over the next 15 years. This mandate is not achievable, however, unless energy efficiency standards for existing building alterations and modifications are substantially advanced every triennial cycle.

Rolling back existing acceptance testing and lighting control requirements is the exact opposite direction from what California needs and the Governor has ordered.

We'd like to thank staff for giving my clients an opportunity to review and comment on earlier versions of the proposed amendments to Title 24 lighting retrofit control, power and acceptance test requirements. As discussed below, even with the recent changes to these proposals, retrofits subject to 2016 requirements will be less efficient than retrofits subject to current 2013 requirements.

The 2013 Code currently requires most lighting system alterations, luminaire modifications and lighting wiring alterations in nonresidential buildings to install the following advanced lighting systems: (1) Section 130.1(a) area controls; (2) Section 130.1(b) multi-level controls (or in some limited cases one-step controls); (3) Section 130.1(c) shut-off controls; and (4) Section 130.1(d) Automatic Daylight Controls. These lighting controls are an essential component to meeting California's energy efficiency goals. *Lighting controls can **double** a retrofit's energy savings over just putting in more efficient LEDs.*

In addition, the 2013 Code requires acceptance testing for all retrofits that require installation of controls. Lighting control acceptance tests are necessary to ensure that controls operate correctly so they can achieve their desired energy saving potential instead of just providing illusory paper savings. *Studies have found that, without acceptance testing, the actual energy savings achieved by lighting controls may be less than half of what would be achieved with acceptance testing.*

The California Energy Commission is now proposing to adopt amendments to Title 24 that would create significant new exemptions to these current lighting control and acceptance testing requirements for retrofits in existing buildings. These proposals roll back current energy efficiency requirements for existing building retrofits. Moreover, these proposals have not been sufficiently vetted or justified and have been proposed in violation of the California Procedure Act. We urge the Commission to reject these proposed amendments.

I. SUMMARY OF PROPOSED TITLE 24 LIGHTING RETROFIT AMENDMENTS THAT REDUCE ENERGY SAVINGS AND SHOULD BE REJECTED BY THE COMMISSION

The below amendments proposed for adoption into the 2016 Code create significant new exemptions to current lighting control and acceptance testing requirements for retrofits in existing non-residential buildings. Accordingly, IBEW, NECA, and the NECA-IBEW LMCC respectfully request that these proposed code changes be rejected by the Commission:

A. Lighting System Alteration Exemptions: Proposed Section 141.0, subdivision (b)2.I.ii

Section 141.0, subdivision (b)2.I.ii exempts luminaire alterations that result in at least 30% lower power consumption compared to the original luminaires from existing area control requirements, multi-level and one-step control requirements, daylighting control requirements, and lighting power allowance requirements. In order to retain the same level of energy efficiency savings for these alterations as required under the 2013 Code, Section 141.0, subdivision (b)2.I.ii would need to be deleted in its entirety.

B. Luminaire Modification Exemptions: Proposed Section 141.0, subdivision (b)2.J and proposed deletion of existing Table 141.0-F

The CEC proposes deleting the control requirements set forth in existing Table 141.0-F and replacing these requirements with the language in proposed Section 141.0, subdivision (b)2.J. These changes exempt all luminaire modifications from existing multi-level, one-step and daylighting control requirements, and exempt modified luminaires that have at least 30% lower power consumption compared to the original luminaires from current lighting power allowance requirements. In addition, these changes increase the threshold for triggering Title 24 compliance requirements for luminaire modifications from modification of 40 luminaires to modification of 70 luminaires. In order to retain the same level of energy efficiency savings for these modifications as required under the 2013 Code, Table 141.0-F would need to be retained in the 2016 Code and Section 141.0, subdivision (b)2.J would need to be amended as follows:

J. Luminaire Component Modifications. Luminaire component modifications in place that include replacing the ballasts or drivers and the associated lamps in the luminaire, or permanently changing the light source of the luminaire, or changing the optical system of the luminaire, where ~~70-40~~ or more existing luminaires are modified on any single floor of a building, shall meet the applicable requirements of Table 141.0-F Sections 130.1(a)1, 2, and 3, 130.1(e)1A through C, 130.1(e)2, 130.1(e)3, 130.1(e)4, 130.1(e)5, 130.1(e)6A, and for parking garages 130.1(e)7B, shall not prevent or disable the operation of any multi-level, shut-off, or daylighting controls, and shall either:

~~i. Meet~~ the lighting power allowance in Section 140.6; ~~or~~

~~ii. Collectively have at least 30 percent lower rated power at full light output as compared to the original luminaires prior to being modified.~~

C. Wiring Alteration Exemptions: Proposed Section 141.0, subdivisions (b)2.K.iii and (b)2.K.iv

Proposed Section 141.0, subdivision (b)2.K.iii replaces the current requirement to install multi-level controls when significant lighting wiring alterations are performed with a requirement to install less efficient single-step controls. Proposed Section 141.0, subdivision (b)2.K.iv exempts lighting wiring alterations that include less than 25 luminaires within the applicable daylight zones from the requirement to comply with Section 130.1(d) daylighting control requirements. In order to retain the same level of energy efficiency savings for these wiring alterations as currently required under the 2013 Code, Section 141.0, subdivision (b)2.K would need to be amended as follows:

K. Lighting Wiring Alterations. For each enclosed space, wiring alterations that add circuit feeding luminaires; that replace, modify, or relocate wiring between a switch or panelboard and luminaires; or that replace lighting control panels, panelboards, or branch circuit wiring; shall:

i. meet the lighting power allowance in Section 140.6;

ii. meet the requirements in Sections 130.1(a)1, 2, and 3, 130.1(c)1A through C, 130.1(c)3, and 130.1(c)4;

iii. ~~for each enclosed space, be wired to create a minimum of one step between 30-70 percent of lighting power; and~~ meet the requirements of Section 130.1(b)

iv. ~~for each enclosed space where wiring alterations include 25 or more luminaires that are located within the primary sidelit daylight zone and the skylit daylight zone,~~ meet the requirements of 130.1(d).

D. Acceptance Test Exemptions: Proposed Sections 141.0, subdivisions (b)2.I [“Exception 4”], (b)2.J [“Exception 4”], (b)2.K [Exception 4], and (b)2.L [“Exception to Section 141.0(b)2L”]

The 15 day language proposes adding new exceptions to Sections 141.0, subdivisions (b)2.I, (b)2.J, (b)2.K and (b)2.L that would exempt controls that are added to 20 or fewer luminaires from current acceptance test requirements. In order to maintain the same level of verification and energy savings as required under the 2013 code, the following exceptions would need to be deleted: (1) Section 141.0, subdivision (b)2.I, “Exception 4”; (2) Section 141.0, subdivision (b)2.J, “Exception 4”; (3) Section 141.0, subdivision (b)2.K, “Exception 4”; and (4) Section 141.0, subdivision (b)2.L, “Exception to Section 141.0(b)2L.”

II. PROPOSED ROLLBACK OF STANDARDS IS CONTRARY TO THE ADMINISTRATION’S ENERGY EFFICIENCY GOALS AND POLICIES FOR EXISTING BUILDINGS

The proposed rollback of these requirements is contrary to the Governor’s mandate set forth in his inaugural address earlier this year to double the efficiency of existing buildings over the next 15 years. This mandate is not achievable if buildings are allowed to evade current lighting system efficiency requirements through these exemptions. The proposed rollback of these requirements is also contrary to the Commission’s own statutory mandate to adopt building standards that “increase” energy efficiency in buildings.

Lighting controls are also critical to meeting California's greenhouse gas reduction goals. The CPUC's 2008 *Long Term Energy Efficiency Strategic Plan* noted that long-term strategic planning is needed to achieve California's energy efficiency and greenhouse gas reduction goals. The plan called for reducing energy consumption in existing residential buildings by 40% by 2020 and for 50% of California's existing commercial buildings to be zero net energy by 2030. These goals cannot be met without substantially increasing energy efficiency requirements each code cycle.

A. Requiring Advanced Lighting Controls in Existing Buildings Is Critical to Meeting California's Energy Efficiency Goals

The requirement to install advanced lighting controls when alterations or modifications are made to lighting systems or luminaires is an essential component to meeting these GHG reduction and energy efficiency goals. Lighting accounts for almost 40% of a commercial building's electrical use. This is double the energy used for cooling. While changing to more efficient bulbs and fixtures is a key first step toward increasing energy efficiency in existing buildings, bulbs, fixtures and simple controls are not adequate. The deeper energy savings needed to achieve California's aggressive energy efficiency goals require also installing advanced lighting controls.

Lighting controls can **double** a retrofit's energy savings over just putting in more efficient LED luminaires and simple occupancy controls. By creating new exemptions to advanced control installation requirements in existing buildings, the Commission will lose substantial energy savings that would be achieved under the current code.

Furthermore, California's energy efficiency and greenhouse gas (GHG) reduction goals cannot be met solely by requiring advanced lighting controls in new buildings. New buildings are a small percentage of the total building stock. There is approximately 8 billion sq. feet of existing, non-residential space in California. Approximately half of this stock was built prior to the establishment of the Building Energy Efficiency Standards. Shallow retrofits to this existing stock will lock in shallow savings, and are thus an obstacle, not a solution, to meeting California's energy efficiency goals.

Non-residential property owners rarely update their lighting systems more than once every 10-15 years. Accordingly, once these shallow retrofits are installed,

deeper energy saving opportunities will be lost for years to come. Conversely, the greater savings achieved under the current advanced control requirements will continue to pay energy savings dividends for the life of the equipment. These greater savings will be lost under the current proposed amendments and these losses will continue to compound for the next four to five code cycles or more.

B. Without Acceptance Testing, Most Controls Fail to Function Properly, Resulting in Substantial Energy Losses

In addition to creating exemptions from current lighting control requirements, the proposed 2016 Code language also exempts indoor and outdoor lighting retrofits from current acceptance test requirements where controls are added to 20 or fewer luminaires. This exemption will further reduce energy savings from what would be achieved through compliance with 2013 Code requirements.

Acceptance testing, which has been required by Title 24 since 2005, is necessary to ensure that assumed paper energy savings translate to actual energy savings. Studies have found that the gap between the expected energy efficiency savings of HVAC and lighting control installations and the energy savings actually realized when evaluated has been as much as 51% and 63%.¹

This gap is particularly prevalent with the installation of advanced lighting controls. An evaluation of Title 24 acceptance testing effectiveness found that automatic daylighting controls failed in 7 out of 7 tests, and occupancy sensors failed in 2 out of 3 tests. All of the failures were due to design, installation, and/or calibration issues that would not have been identified without acceptance testing.²

As these studies show, without acceptance testing, the actual energy savings achieved by the installation of lighting controls may be less than half of what would

¹ See Energy Division, California Public Utilities Commission, *Energy Efficiency Evaluation Report for the 2009 Bridge Funding Period* (January 2011). http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/EM+and+V/2009_Energy_Efficiency_Evaluation_Report.htm; Lutz, Al and Vishy Tirumalashett, ACEEE Summer Study Proceedings, *Measure by Measure: the Real Reasons for Gaps in Claimed and Evaluated Savings* (2012), <http://aceee.org/files/proceedings/2012/data/papers/0193-000134.pdf#page=1>.

² Tyler, Matthew, John Farley and Eliot Crowe. *Evaluation of Title 24 Acceptance Testing Enforcement and Effectiveness*. PEI, September 2011. http://www.cacx.org/PIER/documents/T24_Acceptance_Testing_Final_Report.pdf.

be achieved with acceptance testing. While these studies are limited in size, they remain the best available evidence on the impact of acceptance testing. Due to the enormity of the potential lost energy savings that may result from exempting controls from acceptance test requirements, the proposed acceptance test exemptions should not be adopted until a reliable determination of this proposal's impact is available for the Commissioners and the Administration to assess.

The IBEW, NECA and the LMCC urges the Commission to maintain acceptance test requirements for all advanced lighting control installations to ensure that advanced lighting controls are installed and calibrated correctly so they can achieve their assumed energy saving potential. Without such verification, customers won't earn back their investment in these controls and inefficient lighting systems will be locked in for years to come.

III. PROPOSED AMENDMENTS WILL RESULT IN SUBSTANTIAL LOST ENERGY SAVINGS

A. Compliance with the 2016 Proposals Will Result in Lower Energy Efficiency Savings than Current 2013 Requirements

Under current 2013 standards, lighting system alterations affecting more than 10% of luminaires must include, at a minimum, area controls, automatic shut-off controls and one-step lighting controls; and in certain circumstances must also include daylighting and multi-level controls. The new proposal exempts lighting alterations from all area control, multi-level control and daylighting control requirements if the replacement luminaires have at least 30% lower rated power. On its face, this exemption would reduce energy savings from what would occur under the 2013 standards.

The same is true with the proposed exemptions applicable to modifications of luminaires. The current 2013 Code exempts luminaire modifications from Title 24 requirements if the number of modified luminaires on a single story is less than 40. The proposal increases the number of lighting modifications that can be made without complying with Title 24 requirements from 40 to 70, substantially increasing the number of projects that would be exempted and the energy savings that would be lost.

The proposed amendments also allow a modification project to avoid complying with the current 2013 requirement to meet the power allowance of Section 140.6. Under the new language, a modification project may exceed the power allowance of Section 140.6, as long as it has at least 30% lower rated power as compared to the original luminaires. In addition, staff is proposing to entirely eliminate the current 2013 requirement for large modification projects to install automatic daylight controls and multi-level (or bi-level) controls. Both of these exemptions would further reduce energy savings from what would occur under the 2013 standards.

The proposed amendment to indoor and outdoor lighting retrofit acceptance test requirements compounds these energy savings losses by exempting certain installations from critical verification requirements. The studies cited above demonstrate that, as a whole, the controls exempted from acceptance test requirements can be expected to provide less than half of the energy savings that would be achieved with acceptance testing.

The assumption that these exemptions would result in greater energy savings than 2013 Code requirements defies credibility. There is no question that lighting retrofits complying with 2013 requirements will be more energy efficiency than lighting retrofits complying with these proposed 2016 requirements. Staff, however, appears to be justifying their support of these changes based on an unsupported and arbitrary assumption that these lighting control and acceptance test exemptions will result in more annual retrofits than would otherwise occur. No evidentiary basis for this assumption has been provided or vetted for stakeholder comment.

Moreover, this assumption fails to take into account the significant lost opportunity costs that come with these shallow retrofits. Once shallow retrofits are installed under these new broader exemptions, deeper energy saving opportunities will be lost for years to come. Commercial property owners generally are willing to retrofit only once every 10 to 15 years. Smaller commercial properties such as liquor stores or other mom and pop commercial retail stores may only retrofit once every 20 or 30 years. This means that the control and verification requirements currently required under the 2013 code will now have to wait until 2032 or beyond.

Even if any evidence existed that these exemptions would encourage some building owners to update their lighting a few years earlier, these shallow savings

will be locked in for the next 10 to 15 years. Accordingly, any comparison between increased retrofit rates and lost energy savings must take into account the compounded lost energy savings over the lifetime of the equipment.

B. Independent Analysis Confirms that the Exemptions Will Result in Significant Lost Energy Savings Compared to Maintaining Current Control and Acceptance Test Requirements

The LMCC engaged an independent engineering firm, M. Neils Engineering, to perform a preliminary independent evaluation of the potential energy impact from the proposed exemptions. A copy of this report is attached as Exhibit A. The firm confirmed that the assumptions relied upon to support these proposals are unsupported by data, are internally inconsistent, are inconsistent with the assumptions and calculations relied upon by PG&E in their April 24, 2015 comments, failed to take into account all energy saving losses from the proposed exemptions, and failed to take into account the compounded energy losses over the lifetime of the altered or modified equipment. Based on the information that was available, M. Neils Engineering concluded that the Commission could not demonstrate with any certainty that the proposed 2016 retrofit control and acceptance test exemptions would maintain or increase energy savings compared to what would be achieved under the current 2013 retrofit control and acceptance test requirements. This analysis underscores the need for these proposals to be based upon verifiable data and to go through a comprehensive stakeholder review process.

IV. SIGNIFICANT ENFORCEMENT AND COMPLIANCE ISSUES NEED TO BE EVALUATED AND ADDRESSED PRIOR TO ADOPTION

The proposed amendment to Section 141.0, subdivision (b)2I.ii exempts lighting system alterations from multi-level and daylighting control requirements and lighting power allowance requirements if the luminaires are at least 30% more efficient than the original luminaires. This exemption raises significant enforcement and compliance issues.

In order to verify compliance, the Authority Having Jurisdiction would need to be able to verify the power rating of the original lighting system. Inspections of permitted alteration work, however, do not occur until after the original system has

been removed and rough installation has been finished. Furthermore, the 2016 Code proposal does not include any other requirement for documenting or verifying the baseline level of the altered luminaires. Accordingly, there is no practical way for a building official to enforce the proposed 30% more efficient lamp option.

This exemption provides an economic incentive to overstate the actual power reduction savings from a lamp change out or modification in order to avoid the additional upfront expense of advanced control requirements. Without a verifiable compliance mechanism, the 30% more efficient lamp option will just result in paper savings. Further study of this control-avoidance option is needed to address compliance and enforcement.

V. COMPLAINTS OF 2013 CODE'S EFFECT ON RETROFIT DEMAND ARE ANECDOTAL AND HAVE BEEN REFUTED BY PG&E STUDIES

Staff has indicated that they proposed these exemptions based upon complaints that the cost and complexity of compliance with the 2013 lighting control requirements for alterations and modifications have reduced the rate of retrofits. These complaints are inaccurate and overstated. The comments in support of the exemptions appear to be coming largely from nonresidential lighting technicians. These technicians are licensed to do lamp and ballast change outs, but are not licensed to install lighting controls. Accordingly, they have a significant incentive to reduce the amount of retrofits that also require installation of controls. No studies or reliable evidence has been presented in support of their claim that the 2013 lighting control requirements have resulted in reduced energy savings due to its impact on retrofit demand.

To the contrary, in comments submitted on April 24, 2015, PG&E expressly refuted the claim that the 2013 Title 24 lighting retrofit requirements have had a negative impact on retrofit energy savings.³ PG&E evaluated projects that utilized utility incentives and those that did not, and found that in both cases the 2013 Title 24 lighting retrofit requirements “have been successfully implemented in the state to general real energy savings.”⁴ The PG&E letter noted that the claimed downturn

³ PG&E Statewide Codes and Standards Program, PG&E Comments on 15 Day Proposed Changes to Nonresidential Lighting Retrofit Requirements in 2016 Title 24 Standards, Docket # 15-BSTD-01 (April 24, 2015) at pp. 4-5, 10.

⁴ *Id.* at p. 10.

in lighting retrofit business actually predated the effective date of the 2013 standards and was due to increasing federal appliance regulation baselines.⁵ PG&E found that, rather than further decreasing retrofit business demand, the 2013 lighting retrofit requirements have increased the demand for deeper retrofits, resulting in substantially increased energy savings.⁶

PG&E's findings are consistent with the feedback that NECA and IBEW have gotten from their contractors and installers regarding the impact of the 2013 code requirements on demand for lighting retrofits. Their members also found that this increased demand has resulted in a significant decrease of lighting control costs since the 2013 Code went into effect. There are also many more suppliers and many more systems available than there were in 2013, further contributing to downward price trends. As a result, the time it takes customers to recoup the cost of lighting controls with savings in electricity cost has gone down substantially since the adoption of the 2013 requirements.

VI. THE PROPOSED EXEMPTIONS HAVE NOT BEEN SUFFICIENTLY VETTED OR SUPPORTED

In their comments submitted on March 19, 2015, PG&E expressed concern that the Commission was considering rolling back adopted 2013 lighting control retrofit standards without preparing a CASE report, gathering appropriate data to support the changes, and undertaking a comprehensive stakeholder process.⁷ PG&E noted, in contrast, that the 2013 requirements for lighting system retrofits were fully vetted, supported by CASE reports and found to be cost-effective. In their April 24 comments, PG&E reiterated that proposed exemptions to current lighting retrofit control requirements did not appear to be data driven and were not consistent with PG&E's findings that the 2013 retrofit requirements had resulted in

⁵ *Id.* at p. 4.

⁶ *Id.* at pp. 4-5.

⁷ PG&E Statewide Codes and Standards Program, PG&E Comments on Proposed Changes to Nonresidential Lighting Retrofit Requirements in 2016 Title 24 Standards, Docket # 15-BSTD-01 (March 19, 2015) at pp. 4-5, 10.

significant energy savings.⁸ The concerns raised by PG&E regarding the lack of adequate stakeholder review and the lack of data driven analysis remain valid.

Unlike most energy code proposals, no CASE report or other formal analysis has been prepared for these amendments to demonstrate their energy impact, cost-effectiveness, and feasibility. While an informal staff analysis was provided to us a few days before the 15 day language was released, this analysis was incomplete and inadequate. Key assumptions in the analysis regarding increased retrofit rates were unsupported by any data or evidence, and appeared outcome driven. In addition, the analysis failed to take into account all energy losses from this proposal, failed to take into account long-term energy loss impacts from delayed deeper retrofits and failed to take into account compliance and enforcement obstacles. Moreover, this informal analysis was never published as part of the supporting documentation for the 15 day language and has not been provided to the general public for review.

Furthermore, most of these exemptions were not included or even alluded to during the Commission's pre-rulemaking stakeholder review process or even during the 45 day public comment period held for the 2016 Code. Instead, they have been proposed for the first time in the 15 day language. Stakeholders thus have had no meaningful opportunity to review and comment on the proposed exemptions or the underlying data, analysis or evidence supporting these exemptions.

Before setting the precedent of adopting amendments that *reduce* existing energy efficiency requirements, the Commission should ensure that its decision has been based on accurate and verifiable data and has been fully and comprehensively vetted by stakeholders. If insufficient information is available to accurately determine these impacts, these amendments should be held back for further study until such information is available.

⁸ PG&E Statewide Codes and Standards Program, PG&E Comments on 15 Day Proposed Changes to Nonresidential Lighting Retrofit Requirements in 2016 Title 24 Standards, Docket # 15-BSTD-01 (April 24, 2015).

VII. ADOPTION OF THE PROPOSED EXEMPTIONS WOULD VIOLATE THE CALIFORNIA ADMINISTRATIVE PROCEDURE ACT

If the Commission is going to move forward with the proposed changes, an additional 45 day public comment period on these changes is necessary. The 15 day public comment period provided for these proposed exemptions is not sufficient to meet the requirements of the California Administrative Procedure Act. The Administrative Procedure Act requires agencies to provide a 45 day public comment period on proposed regulations. If changes to these proposed regulations are made, an additional 45 day public comment period is generally required. However, a 15 day public comment period on changes is sufficient if the proposed changes are not substantial and are sufficiently related to the text contained in the 45 day language that the public was adequately placed on notice that the proposed change could result from the originally proposed regulatory action.⁹

Here, the 45 day language did not propose to any exemptions to control requirements for alterations, did not propose to any exemptions based upon altered or modified luminaires reducing power consumption by some certain amount over the original luminaires, did not propose exempting alterations or modifications from power allowance requirements, and did not propose any exemptions from existing acceptance test requirements. Accordingly, nothing in the 45 day language put the public on notice that the originally proposed amendments could be modified as now being proposed in the 15 day language. Adoption of these lighting control and acceptance test exemptions without providing a new 45 day public comment period would thus violate California Law.

VIII. ADOPTION OF THE PROPOSED AMENDMENTS VIOLATES THE FEDERAL REQUIREMENT TO ADOPT ENERGY EFFICIENCY STANDARDS AT LEAST AS STRINGENT AS ASHRAE 90.1

The proposed amendment to Section 141.0, subdivision (b)2I.ii provides that lighting system alterations shall be exempt from lighting power allowance requirements if the luminaires are at least 30% more efficient than the original luminaires. This exemption violates the federal requirement to adopt energy

⁹ Gov. Code section 11346.8, subd. (c).

efficiency standards for commercial buildings that are at least as stringent as the ASHRAE 90.1 standards. The Energy Policy Act (EPACT) of 1992 requires that all states adopt an energy code that is at least as stringent as ASHRAE 90.1. ASHRAE Standard 90.1-2010 requires compliance with lighting power density requirements if more than 10% of the lighting is retrofitted. By allowing retrofits to exceed lighting power density requirements, this exemption fails to maintain energy efficiency standards for commercial buildings that are at least as stringent as the ASHRAE 90.1 standards.

IX. ADOPTION OF THE PROPOSED EXEMPTIONS WOULD VIOLATE CEQA

The proposed Initial Study/Negative Declaration prepared for the 2016 Title 24 rulemaking does not evaluate or take into account the reduction in energy efficiency in building alterations and modifications from the proposed rollback of control and verification requirements. It also does not take into account the inconsistency between this rollback and the AB 32 building efficiency goals. These changes require additional review under the California Environmental Quality Act (“CEQA”) and may require preparation of an Environmental Impact Report (“EIR”).

CEQA requires that an agency analyze the potential environmental impacts of its proposed actions in an EIR if “there is substantial evidence, in light of the whole record before the lead agency, that the project may have a significant effect on the environment.”¹⁰ A negative declaration is only allowed in lieu of an EIR where there is not even a “fair argument” that the project will have a significant environmental effect.¹¹

The “fair argument” standard is an exceptionally “low threshold” favoring environmental review in an EIR rather than a negative declaration.¹² The “fair argument” standard requires preparation of an EIR, if any substantial evidence in the record indicates that a project may have an adverse environmental effect.¹³ As

¹⁰ Pub. Resources Code, § 21080, subd. (d) (emphasis added); CEQA Guidelines, § 15064.

¹¹ *Citizens of Lake Murray v. San Diego* (1989) 129 Cal.App.3d 436, 440; Pub. Resources Code, §§ 21100, 21064.

¹² *Pocket Protectors v. City of Sacramento* (2004) 124 Cal.App.4th 903, 928.

¹³ CEQA Guidelines, § 15064, subd. (f)(1); *Pocket Protectors v. City of Sacramento*, *supra*, 124 Cal.App.4th at 931.

a matter of law, substantial evidence includes both expert and lay opinion.¹⁴ Even if other substantial evidence supports the opposite conclusion, the agency nevertheless must prepare an EIR.¹⁵ Under the “fair argument,” CEQA always resolves the benefit of the doubt in favor of the public and the environment.

Here, a fair argument exists that the proposed exemptions will reduce energy savings and may result in increased GHG emissions.

X. CONCLUSION

NECA, IBEW and the LMCC strongly support the energy efficiency goals of the Commission and the administrations. However, the proposals now being considered are contrary to these goals. Encouraging shallow and unverified retrofits rather than making sure that the retrofits that are done are deep and effective will result in substantially less overall energy savings. Moreover, the 2013 code requirements have already been shown to work. PG&E’s study of the 2013 requirements show that that they have substantially increased energy savings. In addition, the increased demand for deeper retrofits spurred by the 2013 requirements have resulted in substantial cost reductions for lighting controls and faster payback of savings to building owners. We urge the Commission to reject the efforts to weaken current standards. California’s energy efficiency requirements for existing buildings need to move forward, not backwards.

Sincerely,

A handwritten signature in blue ink, appearing to read "Thomas A. Enslow", with a long horizontal flourish extending to the right.

Thomas A. Enslow

TAE:lj1

cc: andrew.mcallister@energy.ca.gov, mshirakh@energy.ca.gov
Eurlyne.Geiszler@energy.ca.gov

Attachment: Exhibit A – *M. Neils Engineering, Inc., Evaluation of Proposed Revisions to Section 141.0 of the California Energy Code 15-Day Language*

¹⁴ Pub. Resources Code, § 21080, subd. (e)(1); CEQA Guidelines, § 15064, subd. (f)(5).

¹⁵ *Arviv Enterprises v. South Valley Area Planning Comm.* (2002) 101 Cal.App.4th 1333, 1346.



June 8, 2015

Evaluation of Proposed Revisions to Section 141.0 of the California Energy Code 15-Day Language

**Prepared for IBEW-NECA-LMCC by
Michael F. Neils, P.E.**

Background

In response to a request from IBEW-NECA LMCC, this document evaluates the proposed revisions to Section 141.0 of the California Building Energy Efficiency Standards California Code of Regulations, Title 24, Part 6 (California Energy Code) 15-day language, regarding lighting alterations and modifications.

The author has participated in the California Energy Code revisions process since 1981, most recently as a principal investigator for the CASE Report on Requirements for Controllable Lighting that were included in the 2013 California Energy Code. Additionally, he chaired the California Energy Commission Title 24 Professional Advisory Group lighting subcommittee from 1982 to 1991. He chaired the Commission's Advanced Lighting Professional Advisory Committee (ALPAC), from 1987 through 1993. He was a co-author of the "Advanced Lighting Guidelines, 2001 Edition," published by the New Buildings Institute. In 2001/2002, he provided technical assistance to RLW Analytics and New Buildings Institute in support of the "Outdoor Lighting Baseline Assessment," which evaluated energy use for outdoor lighting in California, on behalf of the California Energy Commission Public Interest Energy Research (PIER) Program. He also was principal investigator for the "Electric Sign Efficiency CASE Report," as part of the 2008 California Energy Commission Title 24 Building Energy Efficiency Standards Rulemaking Proceeding.

Evaluation of Energy Savings Calculations

The proposed revisions to the California Energy Code Section 141.0, regarding lighting alterations, prescribe alternative paths that allow compliance without meeting the lighting power density (LPD) and control requirements for similar new construction. The proposed revisions to the California Energy Code Section 141.0, regarding luminaire modifications increases from 40 to 70 the number of modifications that may be made without any Title 24 compliance, eliminates all luminaire modifications from existing multi-level, one-step and daylighting control requirements, and exempts modified luminaires that have at least 30% lower power consumption compared to the original luminaires from current lighting power allowance requirements.

In a previous unpublished version of these revisions, the alternative path for lighting alterations and luminaire modifications allowed compliance based on a 20 percent reduction from existing LPD. PG&E commented on this prior, unpublished version of the revisions in a report dated April 24, 2015.¹ PG&E found that the 20 percent power reduction pathway would result in 253 GWh lost savings annually due to the exemptions from control requirements as compared to compliance with the 2013 Code provisions.

The 15-day language increases the power reduction threshold for the alternative path to 30 percent, from the 20 percent commented on in the PG&E report. Review of the calculations provided by the Energy Commission² to support the 30% reduction reveals the information summarized below:

Increased Market Share Assumptions

1. An assumed market share increase for entire luminaire alteration from 37.6% to 56.4% (50% increase). No data or basis is provided to support this assumed increase.
2. An assumed market share increase for luminaire component modifications from 13.9% to 20.8% (50% increase). No data or basis is provided to support this assumed increase.

¹ PG&E Comments on 15 Day Proposed Changes to Nonresidential Lighting Retrofit Requirements in 2016 Title 24 Standards, Docket #15-BSTD-01 2016 Building Standards Update, April 24, 2015, page 2.

² Lighting alteration savings analysis 04292015 vx1a.xlsx [Excel spreadsheet].

3. No corresponding decrease in the other compliance paths for LPD, which is highly unlikely and which results in a total market share of 118%. A market share of greater than 100% is not possible.

Calculations Fail to Take Into Account All Lost Energy Savings for Lighting System Alterations

Because the market share of the alternative compliance paths is not decreased, these calculations fail to account for the resulting reduction in energy savings. In addition, these calculations do not take into account the compound loss of savings over the lifetime of the altered luminaires. If the market share of compliance paths involving controllable lighting is decreased, the persistent savings that would have been achieved by implementation of these measures will be lost for the lifetime of the lighting replacements.

Inconsistency with PG&E Calculations

There is nearly ten times difference between the PG&E value of 253 GWh/yr and the Energy Commission's value of 34 GWh/yr for reduced savings from the 20% reduction measure. This discrepancy needs to be resolved. The Energy Commission assumes that modifying the percent reduction from 20% to 30% will increase energy savings by 72 GWh. The PG&E report, however, finds that the 20% reduction pathway would result in a 253 GWh/yr deficit. If modifying the percent reduction from 20% to 30% will increase energy savings by 72 GWh, then, under the PG&E calculations, this would still result in a 181 GWh/yr deficit.

Failure to Evaluate Lost Energy Savings From Lack of Verification and Enforcement

CEC calculations do not evaluate lost energy savings from proposed acceptance test exemptions or from potential enforcement and compliance issues related to the 30% reduction pathway. If the 30 percent power reduction is not adequately verified or enforced, it will lead to lower actual energy savings compared to paper energy savings.

Lost Energy Savings Due to Changes in Requirements for Lighting Control Modifications

The 15 day language also deletes control and power allowance requirements that currently apply to lighting control modifications. These changes exempt all luminaire modifications from existing multi-level, one-step and daylighting control requirements, and exempt modified luminaires that have at least 30% lower power consumption compared to the original luminaires from current lighting power allowance requirements. In addition, these changes increase the threshold for triggering Title 24 compliance requirements for luminaire modifications from modification of 40 luminaires to modification of 70 luminaires. All of these changes will result in lost energy savings compared to compliance with 2013 lighting control modification requirements. The number of modifications that will no longer be subject to any Title 24 requirements may increase significantly. Any analysis of the impact from this expanded exemption must look not only at the number of projects that currently involve between 40 and 70 luminaires, but must also determine if many projects that currently involve between 70 and 100 luminaires may be induced to reduce their number to 69 luminaires in order to avoid Title 24 compliance requirements.

Conclusion

Based on the unsupported assumption of market share for the 30% reduction compliance path and other gaps in the Energy Commission's analysis, the Commission has not demonstrated that the proposed exemptions to current control requirements for lighting alterations and modifications will prevent the loss of energy savings compared to the 2013 Title 24 baseline.