

October 27, 2015  
California Energy Commission  
1516 Ninth Street  
Sacramento, CA 95814-5512

California Energy Commission

**DOCKETED**

**15-BSTD-01**

**TN # 7629H**

**OCT 29 2015**

**RE: Docket 15-BSTD-01 Title 24**

Dear Sir or Madam,

FESS Energy, Inc., a California electrical contractor, and our parent firm, Financial Energy Management, Inc., provide energy management contracting and consulting services to California businesses and throughout the Country. We have been in the energy efficient lighting retrofit business for thirty one years. We have completed thousands of lighting projects from hospitals to schools and universities, in offices, retail spaces, and in warehouses.

We are pleased to be able to offer comments and to propose modifications to the program guidelines as they relate to Title 24 lighting requirements. Title 24 lighting requirements should not apply to retrofit projects and should be relegated to new construction only. Applying these detailed requirements has paralyzed and essentially shut down the energy efficient lighting retrofit business in California. Large and small lighting retrofitters alike are laying off crews as the confusion, complications and expense of T-24 lighting compliance are daunting. A non-Title 24 compliant LED retrofit can easily save 50% of the lighting wattage in a commercial space. The cost of an industry standard, non-Title 24, LED upgrade is typically \$1.25-\$1.50 per s.f. and \$2 to \$2.25 /s.f. if you add sensors throughout. If the project requires prevailing wages (Prop. 39) the cost rises to \$2.50 to \$3.00 per s.f. If you apply Title 24 requirements the cost jumps to \$4/s.f. and higher with prevailing wages. The marginal additional savings going from an industry standard LED retrofit to a Title 24 case is minimal. Title 24 required motion sensors everywhere and daylight harvesting on all fixtures no matter how few or difficult to wire-in, save very little additional wattage once the fixtures and/or lamps are LED. The Title 24 compliance paperwork is daunting and most importantly adds at least \$1/s.f. or 50% to 65% of an industry standard LED retrofit! Stated another way, just the Title 24 paperwork, which saves nothing is 50 to 65% of the total labor and materials cost of an industry standard LED retrofit job!

Existing facilities are not wired in a manner that allows dimming controls and day-light harvesting to be incorporated cost effectively. Trying to implement a T-24 compliant project in a retrofit situation can double the cost of an energy efficient retrofit. When businesses see the cost of complying they are either cancelling the project or doing a more cost effective (and in some cases a more efficient) non-T-24 compliant project without pulling a permit.

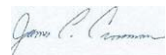
I also question the savings assumptions attributed to T-24 dimming control requirements since this presumes spaces are over lit and will be dimmed down, saving energy, when dimming controls are added. For the past 15 years our company and others in the lighting industry have been de-lamping fixtures since newer T-8 fluorescent technology offers greater efficacy, better visual acuity at lower light levels, and consistent light output over the lamp life. Reflectors, lower wattage T-8 lamps (28W or 25W), and low ballast factor ballasts all have been used to tune existing spaces to proper lighting levels. Ironically, the Title-24 compliant dimming T-8 lamps are 32W verses the prominently used 28W T-8's. Dimming fluorescent ballasts use more energy per lumen produced than the instant start ballasts we are required to remove. Unless the Title-24 dimming fixture is actually dimmed there are no savings in which case the T-24 compliant design would actually increase lighting power use. Since most offices and schools have been de-lamped, spaces are not over lit, any dimming would produce insufficient lighting levels and hence fixtures would never be dimmed. If lighting levels are already appropriate, then there will be no energy savings from this mandated, very expensive retrofit!

Daylight harvesting does offer some savings opportunities where existing circuits allow this control but only in a small sub-set of fixtures that have proximity to sufficient daylight through-out the day. Complying with T-24 in these areas is very expensive in a retrofit application as they require re-wiring of circuits and use of expensive wired and/or wireless photo-controls, relays, and dimming power packs, or new fixtures with on-board controls.

The Title 24 requirement for Demand Response (DR) controls is also wasted on lighting retrofit projects, and should not be required. The greatest benefit from these DR controls is in HVAC operation. Remember, with dimming lighting and daylighting controls mandated in title 24, all spaces will be optimally lit with the precise amount of light required for the work task. How then can one dim down in response to a DR event without producing sub-optimal, or un-safe lighting! Children in schools are going to learn to read with light levels which, by definition, are below the appropriate levels. For what purpose?- "to help keep electric costs low and the grid stable". This is bad policy.

Thank you for your consideration of these issue and concerns. I would welcome discussing further the impact of applying T-24 lighting requirements in a retrofit situation.

Most sincerely,



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