California Energy Commission
Attn: Docket 15-BSTD-01
Dockets Office
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Re: Comments of Ecology Action regarding Title 24 15-Day Language and 2013 Code Impacts Data

Dear Commissioner McAllister,

Recently the Commission has received a flurry of letters from union electricians and union contractors. These letters oppose the proposed 2016 Title 24 language that seeks to correct the 2013 Code's unintended damage to the lighting retrofit industry. As you weigh the arguments for and against the proposed changes, please be aware of some critically important facts regarding their comments:

- **Several key allegations cited in the letters are either misleading or factually incorrect.** We illustrate the inaccuracies point-by-point in the body of this letter.

- **The letters provide scant real-word supporting data or documentation of their claims.** In contrast, more than a dozen companies and organizations thus far have provided CEC with hard data that irrefutably documents the severe harm that the 2013 Code has wreaked on their businesses, employees and programs. The real, ongoing negative impacts include severe staffing cuts, drastic reductions in lighting product sales, tens of millions of kWh in stranded savings, and a dramatic reduction in lighting retrofit comprehensiveness. See the attached Impact Summary for details.

- **Contrary to assertions, the proposed 2016 language delivers greater savings than 2013 Code.** CEC staff's Impact Analysis shows that the proposed 2016 Code changes as written will result in 38 GWh of greater energy savings compared to the 2013 Code. Comments claiming that the proposed Code language will reduce savings are incorrect.

Below are listed several claims made in the letters, followed by our rebuttal and supporting data:

Allegation: *The effects of the 2013 Code on cost and retrofit work is overstated and based solely on anecdotal evidence.*

Rebuttal: Docketed data from numerous stakeholders show that the 2013 Code has raised the bar so high that customers reject nearly all Code-triggering retrofit proposals. Stakeholders providing hard evidence include the nation's largest municipal utility, four government partnerships, lighting distributors and recyclers, program implementers, licensed contractors and many more (see Impact Summary).

Allegation: *The controls requirements and related provisions of the 2013 Code do not add significant costs to projects.*

Rebuttal: Real costs for establishing multi-level lighting and related controls have raised project costs to approximately twice their previous levels, not including the necessary additional design work and acceptance testing. Net costs to customers after incentives are up even more. Ecology Action has provided CEC staff and consultants with detailed costing information on sample projects, and these data are matched by similar values from other stakeholders (see Impact Summary).

Allegation: *Lighting projects with controls save twice the energy of a retrofit without controls.*

Rebuttal: This statement is misleading at best. We examined a variety of common retrofit types and could find no instance where the controls savings equaled the pre-post fixture wattage savings (see attached Controls Savings table). Actual wattage savings from controls typically average 15% - 25%. Even the best case (lowest wattage delta and maximum DEER controls savings) does not yield doubled savings. While it may be technically possible in new construction extreme edge cases with multiple stacked controls, such projects are simply not feasible for retrofit jobs due to the high costs and paybacks that are far beyond the range of customer acceptance.

Allegation: *Most commenters in support of the proposed Code changes are doing lighting retrofits that are shallow and not comprehensive.*

Rebuttal: In reality, most lighting contractors and program implementers seek to specify jobs that are as comprehensive as practicable. Retrofitters typically have installed a wide range of lighting measures and technologies, and Ecology Action can provide detailed data on specific measures installed over more than a decade that refute this allegation. However, since the 2013 Code took effect stakeholder data shows that both comprehensiveness and per-project savings has been greatly reduced due to the overly stringent requirements in Title 24 2013 (see Impact Summary for measure-level details).

Allegation: *The Acceptance Testing Final Report showed occupancy sensors failed in 2 out of 3 tests, so without Acceptance Testing for small projects, controls savings will be jeopardized.*

Rebuttal: This is highly misleading. For occupancy sensors, the referenced study examined only a single building and the test was performed only one time[1]. A statistical sample size of one, by any rational criteria, is an insufficient basis to draw reasonable conclusions from or to use for setting statewide policy. We do not question the need for acceptance testing of truly advanced controls such as automatic daylighting or demand response. However, simple occupancy sensors, time clocks and photocells are NOT advanced controls and acceptance testing for these should not be required for retrofit projects installing 20 or fewer controls.

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[1] *Evaluation of Title 24 Acceptance Testing Enforcement and Effectiveness*, pgs. 7 and 11.

Allegation: *Feedback that NECA and IBEW are getting from their contractors and installers is that the 2013 code has increased the demand for deeper retrofit lighting control installations.*

Rebuttal: The lighting retrofit market is typically served by licensed contractors and electricians who are non-union. As the docketed data from these contractors clearly demonstrates, lighting retrofit work overall is down sharply, as is the demand for comprehensive control solutions in the retrofit market (see Impact Analysis). Demand for lighting controls may well be increased in the new construction and major tenant improvement situations in which union commenters are familiar. However, the impact of 2013 code on the retrofit market has been to dramatically reduce both the quantity of energy savings per project and the number of lighting controls installed in projects.

Conclusion

The attached Impacts Summary illustrates the significant body of evidence demonstrating the unintended harm that the 2013 Code is inflicting on the lighting retrofit industry. Tens of millions of kilowatt-hours of potential savings are being stranded as potential customers routinely reject Code-triggering proposals. Lighting contractors are continuing to downsize or cease operations and hundreds of jobs have already been lost. These are not mere assertions but are facts supported by real data from the people being affected.

A significant portion of statewide energy efficiency savings comes from lighting retrofits in the Small and Medium business sector. Based on all the available evidence it is clear that absent real change, a significant percentage of the expected 2013 Code-based savings from lighting retrofits will simply never materialize. While well intentioned, the 2013 Code is in reality achieving the exact opposite of its intended purpose in the retrofit market. Unless this is corrected we will undoubtedly fail to achieve California's ambitious energy savings goals.

The good news is that the proposed 15-Day Language reflects market realities, corrects the most critical aspects that are hindering savings and is acceptable to the retrofit industry. Furthermore, per CEC's own analysis the proposed Alterations language will deliver substantially more savings (38 GWH) than the 2013 Code. For all these reasons, we believe it is essential that the Commission adopt the proposed 2016 15-Day Language. An entire industry and thousands of jobs hang in the balance.

Respectfully,

Gene Thomas

Senior Energy Analyst
Ecology Action

IMPACT SUMMARY - Stakeholder Data on Title 24 2013 Impacts			
Organization	**Organization Type**	**Commenter**	**Specific Impacts and Comments**
Los Angeles Department of Water & Power	Municipal Utility	David Jacot, PE	The 2013 code has had severe impacts on our lighting portfolio, especially our Small Business Direct Install program. Negative code-related SBDI impacts include: • Average number of fixture modifications per site decreased by 48%. • 1,139 projects and over 50,000 fixtures were stranded, representing a loss of 10,752,254 kWh in achievable program savings (23% of the total).
San Francisco Department of Environment	Government Partnership	Deborah O. Raphael	In our experience the 2013 standards have been counter-productive for retrofit projects and have substantially reduced the real savings achieved by our program. We have seen energy efficiency retrofits to existing buildings drastically curtailed. • Before the 2013 code, bi-level jobs represented 10% of our projects and 23% of program savings. After the code took effect, no bi-level jobs have been sold. • T8 monthly project count is down 53% and T8 achieved kWh savings down by 70%. • Monthly LED project count down 35%, LED fixture achieved savings down 47%. • Overall, total program kWh down 29% and total project count down 14%.
East Bay Energy Watch	Government Partnership	Ali Jones-Bey	After Title 24 was enacted, our BEST program project completion rate for number of projects installed dropped 50%. Our average reported kWh savings dropped 40%, and average kWh committed dropped 36%. Average incentive dollars committed and paid out per project dropped 29%. Pre-T24 payback was at a 2.61 year average, but in 2015 so far the average has been 4.27 years.
Redwood Coast Energy Authority	Government Partnership	Lou Jacobson	Sampled project cost increased by 82%, net cost after incentive doubled; simple payback up by 77% since 2013 code began.
Stanford University	Public University	Gerry Hamilton, PE	Our group re-ballast efforts have halted entirely due to the 2013 Code.

Avail Services	Energy Services Company	Anthony Orsini	• With the implementation of the 2013 Title 24 Codes we have seen a 63% drop in sales for lighting retrofit projects. • In 2015 we had to lay off 25% of our lighting technicians due to decreased sales, longer than normal sales cycle and increased costs associated with Title 24 lighting retrofit projects. • The majority of customers are opting out of lighting retrofit programs or want a less expensive lamp-only replacement, significantly reducing energy savings. • Before the Title 24 Code changes we had great success with hard to reach small and medium sized customers. After the 2013 Code went into effect this market has become increasingly harder to reach. • Additional product needed to meet the control requirements and lighting code standards, the increased labor, detailed surveys, jurisdictional permitting costs and paperwork required for Title 24 has made retrofit lighting projects cost prohibitive for the average customer and contractor.
Royal Wholesale Electric	Lighting Supplier/ Distributor	Robyn Viviano	As a lighting distributor, I am ready, willing and able to supply the market and make the programs a success, but Title 24 just needs to get out of the way. In my experience, the 2013 standards have nearly eliminated our fixture upgrade-to-LED business. Our business has changed dramatically: • All but a few very small jobs have been shelved. • LED Fixture replacement is down 90%. • Upgrades to T5 highbays has gone to zero. • 89% of our retrofit business is now screw-in lamp replacement, with most of that in HID replacement.
Quick Light Recycling	Lighting Recycling Company	Pamela Woodard	Our business is off by 25% since the 2013 Code took effect due to impacts on lighting retrofitters. Some of them who typically had truck-load shipments now have only an occasional small pick-up over a longer time frame. Our customers in the energy efficiency industry are pretty much dormant and that passes on to us.

Ecology Action	Program Implementer	Gene Thomas	We reviewed our data on lighting measures across all Ecology Action programs in the 1st half of 2014 vs. the 2nd half after the 2013 Code took effect. Some of the major changes we have experienced as a direct result of the 2013 Code include: • **Costs have doubled for Code-triggering projects.** The costs for establishing multilevel lighting and related controls are resulting in projects that are averaging ~2X their previous cost. • **Code-triggering jobs are not selling.** In the first half of 2014, 53% of our lighting savings came from projects that would have triggered Code under the 2013 rules; after the Code took effect in July, less than 2% of our savings came from Code-triggering projects. We have supplied CEC with actual cost data documenting this. • **Linear fluorescent retrofits have decreased dramatically.** As a percentage of our total lighting savings, LF kWh savings dropped by 46% (from 41% to 22%). Much of the 2013 Code's purported controls savings would supposedly have come from retrofitted ceiling fixtures. • **Lamp-only jobs are displacing more comprehensive retrofits.** Lamp-only jobs (screw-in and pin-based replacements) as a percentage of total lighting savings jumped from 38% to 55%, an increase of 43%. • **Per-project savings is significantly lower.** Average lighting kWh savings per customer dropped by 33%.
Controlled Energy	Lighting Contractor	Don Link	Since the 2013 Code's inception we have laid off 80% of our lighting staff and our sales is down by 80%. Our suppliers are affected too: we are only purchasing a few boxes of lamps and ballasts for the small Code-exempt jobs we are doing vs. the monthly pallet-loads we were purchasing previously, and the recycling companies we use for removed lamps and ballasts are now seeing very little business from us.
American Lighting	Lighting Contractor	Neil Miller	Since July 2014 work has dropped by 50%; staff has been cut by 25% with more layoffs anticipated; zero out of 100+ Code-compliant proposals have been accepted by customers.
Dana Electric	Lighting Contractor	Troy McPeek	I laid off my entire crew due to the 2013 Code.
ABM Electrical & Lighting Solutions	Lighting Contractor	Joe Zentgraf	We have not completed a single Title 24 compliant job since July 2014.
Lumenature	Lighting Contractor	Mark Pursell	• Our normal work crew is half or less than what we had prior to Title 24 2013. • A much higher percentage of our installs are lamp-only.

			• We have installed only one Title 24 triggering job since July 2014. • Our monthly number of jobs has dropped by 35% and gross volume by 37% in the 10 months following July 1, 2014 as compared to the 12 prior months.
ABI Services	Lighting Contractor	Mark Spahn	Our revenue dropped by 58% in Q3 2014 after Code went into effect. Q2 profit $138K, Q3 loss ($64K). Laborers needed in Q2 was 8-9 FTE, in Q3 down to <1.5 FTE. Costs for Code-compliant projects nearly 2X previous costs. Have only sold 2 Code-compliant jobs since last July. Closed down our full services warehouse on 1/1/15 and split up the company in order to take on more profitable work that does not involve lighting retrofits.
Enlight	Lighting Contractor	Matt Tracy	• Our install staff dropped by 41% in 2014 due to uncertainty about Title 24 implementation, and we haven't been able to rehire laid-off employees. • Interior retrofits are almost non-existent due to increased costs for code-compliant projects. • We are spending more money up front to design Title 24 compliant projects that subsequently don't sell because of the increased payback.

Controls Savings Table

	Storage - Conditioned	Office Large - Open Plan Office	Restaurant - Sit-Down - Dining	Health/Medical - All Other	Office Large - Executive
Existing Fixture	250W MH	4' 3Lamp T12 34W Mag ES	Incandescent A-Lamp 60W	4' 2Lamp T8 32W NLO (1st Gen)	4' 2Lamp T8 32W NLO (1st Gen)
System Watts	295	115	60	60	60
Replacement Fixture	4' 4Lamp T8 32w HBF	4' 2Lamp T8 28W LBF	9W LED A Lamp	LED Troffer Retrofit Kit	4' 2Lamp T8 LED 22w
System Watts	148	42	9	35	44
Savings from Lighting Retrofits (W)	147	73	51	25	16
DEER Area Control Savings %	0.16	0.15	0.15	0.16	0.30
Incremental Savings from Controls (W)	23.68	6.3	1.35	5.6	13.2
Control Savings % of Retrofit Savings	16.1%	8.6%	2.6%	22.4%	82.5%

Best case scenario (infrequent)