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Docket 16-BSTD-02 Ecology Action Comments on Proposed ATT Baseline Fixture Verification

Additional submitted attachment is included below.

Docket 16-BSTD-02; Ecology Action Comments on Proposal to Require ATT Verification of Baseline Fixtures

Executive Summary

Special interests representing Acceptance Test Technicians (ATTs) are pressuring CEC to impose sweeping new requirements mandating that existing baseline lighting fixtures can only be verified by ATTs. While this would certainly serve the interests of ATTs by generating more work for them, it would significantly increase retrofit job costs and add delays, especially for small to medium Business (SMB) retrofit projects. Our fundamental concern is that this added complexity and expense is both unnecessary and counterproductive. If adopted it would prevent many projects from moving forward altogether, while driving others "underground" by installing retrofits without permits. We strongly urge CEC not to bow to pressure to require ATT verification of baseline fixtures for lighting retrofit projects. Instead, we propose that the Commission move forward with adopting the draft 2016 Compliance Forms developed by CEC staff that were recently published in this docket.

Ecology Action believes that CEC's draft 2016 Compliance Forms provide the requisite level of detail needed by building officials to establish baseline fixture wattages. These forms provide a detailed space-by-space description of existing fixtures and wattages, which is attested to under penalty of law by the design/build Contractor (i.e., the Responsible Designer) who installs the project. While further refinement of the draft forms should be undertaken (e.g., auto-expanding fields, direct data input from job tracking software, etc.), overall CEC's proposed approach will preserve the 2016 Code's intent and achieve the Commission's goal of streamlining compliance while reducing time and cost burdens. Most importantly, it will do so without mandating an onerous and expensive new inspection regime that benefits special interests but would raise market barriers, block thousands of critically important lighting retrofits and jeopardize attainment of California's ambitious energy efficiency and GHG reduction goals.

ATT Verification is Unnecessary

Independent verification by ATTs is unnecessary because existing fixture wattages are already physically verified by the licensed design/build Contractors who install the projects. Moreover, for verification purposes building inspectors already rely primarily on the fixture descriptions and wattages stated by the Contractors on the compliance forms. Here's how that works currently:

The Contractor, who submits a permit application at the local building department prior to the retrofit, typically initiates the permit process for Code-triggering lighting alterations. After the alteration is installed, enforcement usually includes an on-site visit by a building official along with a review of the compliance forms. However, it's important to note that the inspector's site visit normally consists of a basic, floor-level visual review of the fixtures with forms in hand. **Building inspectors seldom actually climb ladders to physically inspect altered fixtures and personally verify wattages.** Unless the job was installed by an unfamiliar or "problem" Contractor, inspectors usually go by the fixture descriptions and wattages that the Contractors write on the compliance forms. **In other words, inspectors already rely mainly on what the Responsible Designer – the Contractor – has attested to under penalty of law.** Only in cases where new controls are installed is that part of the job verified by an ATT.

The ATT Proposal Far Exceeds Current Enforcement Practices

The ATT lobby's main argument is based on the supposed need to physically verify the existing fixtures to establish the savings baseline (which the Contractors already do), but their proposed enforcement scheme goes much further than that by also requiring ATT verification of the new and altered fixtures. That effectively "doubles down" on their initial premise and goes far beyond current enforcement practices.

ATT Verification Would Add Significant Project Costs and Delays

Ecology Action believes that the cost estimates provided by the ATT lobby are far too low and do not reflect reality. The true costs to have an ATT to come out up front to count and physically inspect existing lamps, record fixture types and figure wattages, and then come back again after the installation to do the same thing for the new fixtures, would – at a minimum – add significant delays and many hundreds if not thousands of dollars to total project costs. While costs increases of this magnitude may be less significant for large projects, they could easily represent a 10% to 30% increase in total job costs for small projects. Unfortunately many of these smaller projects are highly price sensitive, and increases of this magnitude would likely kill many small to medium commercial retrofit projects. Many electrical contractors commented in the Title 24 2016 Docket that they strongly disagreed with the time and cost estimates given for acceptance testing, which they felt to be significantly understated. We fully agree with those concerns. The cost estimates put forth by the ATT lobby for baseline fixture verification demonstrates a similar lack of understanding of the various real-world factors that drive the true costs of what they are proposing. Factors not accounted for include such things as time needed for plan review, after hours charges, added liability costs, "ghost fees" and more.

Ecology Action fundamentally disagrees with the ATT lobby's allegations. We find their conclusions are extrapolated from highly speculative initial assumptions, and the data used to support their claims is primarily based on non-lighting measures or new construction projects that have very limited relevance to California's lighting retrofit market. We note below some of the principal errors in their arguments:

- *"The solution suggested by numerous inspectors at the February 9, 2016 Workshop was to make use of the Commission's existing certified acceptance tester process."*
    - Exaggeration. The "numerous" inspectors cited above was actually two individuals. That said, a similar number of building inspectors has commented to CEC opposing the proposed ATT requirement.
- *"… we know with almost certainty that there will be widespread misrepresentation of the power consumption of existing systems in order to claim to have met the 35% or 50% thresholds."*
    - This is sheer speculation, is unsupported by any direct evidence, and should not serve as the basis for important policy decisions. This allegation unfairly disparages an entire class of licensed professionals and ignores numerous safeguards, QA/QC procedures and third party oversight which is already in place to prevent such occurrences.
- *"… very few existing non-residential occupancies would be able to meet the 35/50% power reduction requirements solely by switching to LEDs or more efficient fluorescent lamps."*
    - Other than in a handful of cases, this statement is demonstrably false and ignores very common practices like delamping. Ecology Action provided CEC with multiple project files showing actual pre-post wattage savings of 65%-70%, and these projects were displayed on screen during the workshop. The following table shows several T8-to-LED project examples that refute this allegation, and further details and other examples are included as an attachment to this letter. Fixture descriptions and wattages shown are from CPUC's latest DEER Lighting Technology Specification (i.e., Tech Workbook).

Common T8-to-LED Retrofit Examples that Meet the 35% / 50% Wattage Savings Threshold

Project: Building Type: Manuf. - Light Industrial (MLI)		
Existing Luminaire: Luminaire Name	Existing Luminaire: Tech Workbook Fixture Type: Description	Tech Workbook: Wattage
Hibay T8 3rd Gen 4' 6L 32w HBF	LF lamp: T8, 48inch, 32W, 3175 lm, CRI=85, rated hours = 24000 (6); LF Ballast: Electronic, Instant Start, High LO, 6 lamps, 120/277 vac (1); Total Fixture Watts = 221	221
Retrofit: Replacement Luminaire: Luminaire Name	Existing Luminaire: Tech Workbook Fixture Type: Description	Tech Workbook: Wattage
LED Retrofit Strips 4ft 2pc 72w 5000K 10800L Linmore	LED fixture: SUS Fixture Type, 76 watts, 6640 Lumens	76
	Wattage Savings	**66%**
Existing Luminaire: Luminaire Name	Existing Luminaire: Tech Workbook Fixture Type: Description	Tech Workbook: Wattage
T8 8' 59W 2L NBF	LF lamp: T8, 96inch, 59W, 5550 lm, CRI=75, rated hours = 20000 (2); LF Ballast: Electronic, Instant Start, Normal LO (1); Total Fixture Watts = 109	109
Retrofit: Replacement Luminaire: Luminaire Name	Existing Luminaire: Tech Workbook Fixture Type: Description	Tech Workbook: Wattage
LED Retrofit Strips 4ft 2pc 44w 5000K 5500L Linmore	LED fixture: SUS Fixture Type, 45 watts, 4560 Lumens	45
	Wattage Savings	**59%**

Project: Building Type: Office Small (OFS)		
Existing Luminaire: Luminaire Name	Existing Luminaire: Tech Workbook Fixture Type: Description	Tech Workbook: Wattage
T8 4' 32w 3L NBF - Existing 3rd Gen	LF lamp: T8, 48inch, 32W, 3175 lm, CRI=85, rated hours = 24000 (3); LF Ballast: Electronic, Instant Start, Normal LO, 3 lamps, 120/277 vac (1); Total Fixture Watts = 83	83
Retrofit: Replacement Luminaire: Luminaire Name	Existing Luminaire: Tech Workbook Fixture Type: Description	Tech Workbook: Wattage
LED Retrofit Strips 2ft 3pc 26w 4100K 2000L Linmore	LED fixture: Any type of housing Fixture Type, 28 watts, Lumens	28
	Wattage Savings	**66%**
Existing Luminaire: Luminaire Name	Existing Luminaire: Tech Workbook Fixture Type: Description	Tech Workbook: Wattage
T8 4' 32w 2L NBF - Existing 3rd Gen	LF lamp: T8, 48inch, 32W, 3175 lm, CRI=85, rated hours = 24000 (2); LF Ballast: Electronic, Program Start, Normal LO, 2 lamps, 120/277 vac (1); Total Fixture Watts = 55	55
Retrofit: Replacement Luminaire: Luminaire Name	Existing Luminaire: Tech Workbook Fixture Type: Description	Tech Workbook: Wattage
LED Retrofit Strips 2ft 2pc 18w 5000K 2000L Linmore	LED fixture: CM Fixture Type, 17 watts, 660 Lumens	17
	Wattage Savings	**69%**

- *"… most non-residential customers are more concerned with current up-front costs than with the savings that advanced controls would provide over the long-term. Non-residential customers are often not interested in paying higher up-front costs for more efficient lighting systems if they will not recoup that cost within two or three years."*
    - True. Absent a gut rehab or similar major renovation, commercial customers in the built environment are not obligated to do anything whatsoever based on changes to Code. That is why lighting systems (which are easily repairable) persist for so long and are recognized as "Repair Indefinitely" measures. Other than in new construction projects, advanced controls simply do not pencil out for the vast majority of SMB customers. Unsurprisingly, the "let them eat cake" attitude that ignores customers' acceptable payback thresholds most often results in rejected retrofit proposals and stranded savings. That is precisely why Title 24 treats alterations differently, and why the 35%/50% savings pathway was put into effect.

- *"For projects at the 20 luminaire alterations threshold that required third party acceptance testing, CALCTP found that an acceptance test for the 35/50% compliance pathway would cost around $500, including both pre- and post inspection on-site visual verifications. Quotes for third-party acceptance testing at this level were between $450 and $525."*
    - We have zero confidence in CALCTP's cost estimates, which do not take into account numerous common cost drivers. For example, many jobs would require renting a lift to access the fixtures both before and after project completion. That factor alone triples the stated cost estimates for those jobs. As we previously mentioned, other factors are also ignored such as time needed for plan review, after hours charges, added liability costs, "ghost fees" for re-certification and more. We believe the real costs for the proposed inspection regime would actually be more than double CALCTP's estimates.

- *"… [CEC] staff claimed that the Commission had not taken into account the cost of acceptance testing when determining the cost-effectiveness of the requirements for non-residential lighting alterations and modifications. This is not correct. Acceptance testing was expressly considered and determined cost-effective for all alterations involving more than 20 controlled-luminaires."*
    - Actually, staff rightfully acknowledged the fact that little if any formal cost analysis was done by CEC on Acceptance Testing. Instead, a "back of the envelope" approach was used that did not properly account for many real costs. This was underscored by the many electrical contractors who commented in the Title 24 2016 Docket that they strongly disagreed with the time and cost estimates given for acceptance testing, which they felt to be significantly understated.

Ultimately the question comes down to this: under Title 24 2016, does the 35% / 50% savings path really require on-site verification of existing fixtures? The simple fact is that there is no such requirement in the 2016 Code. It does not exist in either the letter or the spirit of the Regulations. Imposing such a mandate is completely antithetical to CEC's goal of streamlining enforcement and reducing transaction costs.

Ecology Action believes that adding ATT baseline verification requirements represents a change to adopted Code that is inappropriate outside of the normal Code development process. Instituting such a major change at this late date significantly modifies the spirit and the letter of the adopted Code and would require a new Rulemaking by the Commission. At this stage, enforcement-related Addenda are supposed to be limited to nonsubstantive changes that either add clarity or correct errata, not create whole new classes of requirements that do not exist in the 2016 Regulations. We believe CEC should carefully consider the detrimental market impacts that would inevitably result from taking such drastic action.

Respectfully,

Gene Thomas

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Ecology Action

(Attachment of additional retrofit examples follows)

Work Order: Work Order Name	Work Order: Project: Site Name: Building Type		Interior Aggregate % Reduction	66%											
Best Coffee Roasters	Manuf. - Light Industrial (MLI)		Exterior Aggregate % Reduction	76%											
Area: Area Name	Retrofit: Retrofit Name	Retrofit: Existing Luminaire: Luminaire Name	Retrofit: Existing Luminaire: Tech Workbook Fixture Type: Description	Calculated Lighting Measures: Existing Qty.	Retrofit: Existing Luminaire: Tech Workbook Fixture Type: Wattage	Total Existing Watts	Retrofit: Replacement Luminaire: Luminaire Name	Retrofit: Replacement Luminaire: Tech Workbook Fixture Type: Description	Calculated Lighting Measures: New Qty.	Retrofit: Replacement Luminaire: Tech Workbook Fixture Type: Wattage	Total Replacement Watts	Area: DEER Area Type	Calculated Lighting Measures: Hours of Operation	% Reduction by Area
Warehouse	Hibay T8 3rd Gen 6L 32w HBF-existing/LED Retrofit Strips 4ft 2pc 72w 5000K 10800	Hibay T8 3rd Gen 6L 32w HBF-exist	LF lamp and ballast: L	80	221	17680	LED Retrofit Stri	LED fixture: SUS Fi	80	76	6080	Other	2346	66%
Special Area 1	Hibay T8 3rd Gen 6L 32w HBF-existing/LED Retrofit Strips 4ft 2pc 72w 5000K 1080	Hibay T8 3rd Gen 6L 32w HBF-exist	LF lamp and ballast: L	26	221	5746	LED Retrofit Stri	LED fixture: SUS Fi	26	76	1976	Other	2346	66%
Special Area 2	Hibay T8 3rd Gen 6L 32w HBF-existing/LED Retrofit Strips 4ft 2pc 72w 5000K 1080	Hibay T8 3rd Gen 6L 32w HBF-exist	LF lamp and ballast: L	32	221	7072	LED Retrofit Stri	LED fixture: SUS Fi	32	76	2432	Other	2346	66%
Flavoring	Hibay T8 3rd Gen 6L 32w HBF-existing/LED Retrofit Strips 4ft 2pc 72w 5000K 1080	Hibay T8 3rd Gen 6L 32w HBF-exist	LF lamp and ballast: L	8	221	1768	LED Retrofit Stri	LED fixture: SUS Fi	8	76	608	Other	2346	66%
Compressor Room	Hibay T8 3rd Gen 6L 32w HBF-existing/LED Retrofit Strips 4ft 2pc 72w 5000K 1080	Hibay T8 3rd Gen 6L 32w HBF-exist	LF lamp and ballast: L	2	221	442	LED Retrofit Stri	LED fixture: SUS Fi	2	76	152	Other	2346	66%
Maintenance	T8 8' 59W 2L NBF/LED Retrofit Strips 4ft 2pc 44w 5000K 5500L Linmore	T8 8' 59W 2L NBF	LF lamp and ballast: L	4	109	436	LED Retrofit Stri	LED fixture: SUS Fi	4	45	180	Other	1825	59%
Roasting	High Bay T5 4L Existing/LED Retrofit Strips 4ft 2pc 60w 5000K 9100L Linmore	High Bay T5 4L Existing	LF lamp and ballast: L	2	234	468	LED Retrofit Stri	LED fixture: SUS Fi	2	64	128	Other	2346	73%
Compressor Room	High Bay T5 4L Existing/LED Retrofit Strips 4ft 2pc 60w 5000K 9100L Linmore	High Bay T5 4L Existing	LF lamp and ballast: L	1	234	234	LED Retrofit Stri	LED fixture: SUS Fi	1	64	64	Other	2346	73%
Exterior Soffits	MH 150w 1L/LED Retrofit 60w (175w-250w HID) 4000K Type 5 Global Tech	MH 150w 1L	HID lamp and ballast:	1	190	190	LED Retrofit 60\	LED fixture: Any Fix	1	60	60	Exterior	1825	68%
Nitrogen Tanks	MH 150w 1L/LED Retrofit 60w (175w-250w HID) 4000K Type 5 Global Tech	MH 150w 1L	HID lamp and ballast:	1	190	190	LED Retrofit 60\	LED fixture: Any Fix	1	60	60	Exterior	1825	68%
Dumpsters	MH 150w 1L/LED Retrofit 60w (175w-250w HID) 4000K Type 5 Global Tech	MH 150w 1L	HID lamp and ballast:	1	190	190	LED Retrofit 60\	LED fixture: Any Fix	1	60	60	Exterior	1825	68%
Bldg Front	MH 150w 1L/LED Retrofit 60w (175w-250w HID) 4000K Type 5 Global Tech	MH 150w 1L	HID lamp and ballast:	5	190	950	LED Retrofit 60\	LED fixture: Any Fix	5	60	300	Exterior	1825	68%
Nitrogen Tanks	MH 400W 1L/LED Retrofit 95w (250w-400w HID) 5000K Wallpack/Can/Flood Optic Glob	MH 400W 1L	HID lamp and ballast:	4	458	1832	LED Retrofit 95\	LED fixture: CM Fix	4	95	380	Exterior	1825	79%
Blue Garage	MH 400W 1L/LED Retrofit 95w (250w-400w HID) 5000K Wallpack/Can/Flood Optic Glob	MH 400W 1L	HID lamp and ballast:	1	458	458	LED Retrofit 95\	LED fixture: CM Fix	1	95	95	Exterior	1825	79%
Front Gate	MH 400W 1L/LED Retrofit 95w (250w-400w HID) 5000K Wallpack/Can/Flood Optic Glob	MH 400W 1L	HID lamp and ballast:	1	458	458	LED Retrofit 95\	LED fixture: CM Fix	1	95	95	Exterior	1825	79%
Parking Lot	MH 400W 1L/LED Area 109w SimplyLED	MH 400W 1L	HID lamp and ballast:	4	458	1832	LED Area 109w	LED fixture: Any typ	4	109	436	Exterior	1825	76%

Work Order: Work Order Name	Work Order: Project: Site Name: Building Type		Interior Aggregate % Reduction	65%											
Sorta Big Office Space	Office Small (OFS)		Exterior Aggregate % Reduction	79%											
Area: Area Name	Retrofit: Retrofit Name	Retrofit: Existing Luminaire: Luminaire Name	Retrofit: Existing Luminaire: Tech Workbook Fixture Type: Description	Calculated Lighting Measures: Existing Qty.	Retrofit: Existing Luminaire: Tech Workbook Fixture Type: Wattage	Total Existing Watts	Retrofit: Replacement Luminaire: Luminaire Name	Retrofit: Replacement Luminaire: Tech Workbook Fixture Type: Description	Calculated Lighting Measures: New Qty.	Retrofit: Replacement Luminaire: Tech Workbook Fixture Type: Wattage	Total Replacement Watts	Area: DEER Area Type	Calculated Lighting Measures: Hours of Operation	% Reduction by Area
Office	T8 4' 32w 3L NBF - Existing 3rd Gen/LED Retrofit Strips 2ft 3pc 26w 4100K 2000L	T8 4' 32w 3L NBF - Existing 3rd Gen	LF lamp and ballast: L	58	83	4814	LED Retrofit Stri	LED fixture: Any typ	58	28	1624	Other	2346	66%
Stairs To F's Office	T8 4' 32w 2L NBF - Existing 3rd Gen/LED Retrofit Strips 2ft 2pc 18w 5000K 2000L	T8 4' 32w 2L NBF - Existing 3rd Gen	LF lamp and ballast: L	2	55	110	LED Retrofit Stri	LED fixture: CM Fix	2	17	34	Other	2346	69%
Facilities Office	T8 4' 32w 3L NBF - Existing 3rd Gen/LED Retrofit Strips 4ft 2pc 26w 4100K 3400L	T8 4' 32w 3L NBF - Existing 3rd Gen	LF lamp and ballast: L	6	83	498	LED Retrofit Stri	LED fixture: Any typ	6	28	168	Other	2346	66%
1 QC	T8 4' 32w 2L NBF - Existing 3rd Gen/LED Retrofit Strips 4ft 2pc 26w 5000K 3400L	T8 4' 32w 2L NBF - Existing 3rd Gen	LF lamp and ballast: L	3	55	165	LED Retrofit Stri	LED fixture: Any typ	3	28	84	Other	2346	49%
2 QC	T8 4' 32w 2L NBF - Existing 3rd Gen/LED Retrofit Strips 4ft 2pc 26w 5000K 3400L	T8 4' 32w 2L NBF - Existing 3rd Gen	LF lamp and ballast: L	3	55	165	LED Retrofit Stri	LED fixture: Any typ	3	28	84	Other	1825	49%
Bldg Exterior	HPS 200w 1L/LED Area 53w 5000K SimplyLED	HPS 200w 1L	HID lamp and ballast:	24	250	6000	LED Area 53w 5	LED fixture: Any typ	24	53	1272	Exterior	2919	79%