



CALIFORNIA STATEWIDE UTILITY CODES AND STANDARDS PROGRAM



Notes from May 15, 2014 Stakeholder Meeting

Posted June 6, 2014

MEETING INFORMATION

Meeting Date: May 15, 2014

Topics Discussed: Residential and Nonresidential Lighting Topics

Host: California Statewide Investor Owned Utilities Codes and Standards Team

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MEETING AGENDA

10:00 - 10:15	Introduction: Overview of 2016 Title 24 Development; Summary of stakeholder outreach purpose and procedure
10:15 - 11:45	Residential Lighting
11:45 - 12:15	BREAK
12:15 - 1:15	Nonresidential Indoor Lighting Power Densities (LPDs)
1:15 - 2:00	Nonresidential Lighting Controls: Partial-On Occupancy Sensors
2:00 - 2:15	BREAK
2:15 - 3:15	Nonresidential Outdoor Lighting Power Allowance (LPA)
3:15 - 4:00	Outdoor Lighting Controls (incl. bi-level controls)
4:00 - 4:15	Review and wrap-up, next steps



RECAP

◆ Overview

- Comments are requested from stakeholders by June 6, 2014.

◆ Residential Lighting

- The premise of this proposal is that if we install very high quality products, that provide high color rendering, and don't flicker, buzz, that turn on quickly, that dim smoothly, have a CCT that the majority of homeowners prefer, and actually last 10 years, that we will greatly reduce anyone's desire to replace these.
- CASE Team is proposing a number of requirements throughout the dimmed range, as well as compliance with SSL7A. As for the number of cans per circuit, CASE Team is investigating this and would appreciate comments.
- All current controls requirements will be maintained in our proposal for fixtures that use high quality high efficacy lamps to qualify.
- The proposed JA8 is not technology independent as claimed for a very simple reason: the proposed compatibility standard NEMA SSL7A applies to only Solid State Lighting products, as the name suggests. No other lamps can meet it by virtue of the scope.

◆ Nonresidential Lighting – Lighting Power Densities (LPDs)

- The general trend in ASHRAE/IES 90.1 and ICC energy codes has been to increase control requirements instead of reducing LPDs further, which has also been true for T24. Reducing LPD values can give a false picture of savings without deeper analysis.
- CASE Team: There was discussion about this while the evaluation of the design criteria occurred. We determined that the criteria and design circumstances are slightly different, and therefore warrant the different allowance values.
- CASE Team: Please get us info from the field ASAP since we only have one month to get our proposals in. I haven't heard a lot of feedback from designers who are using the current code.
 - We can incorporate this feedback into CEC public workshop on ~~June 19th~~ *[now scheduled for June 24th]*.
 - Charles Knuffke (Wattstopper) will get feedback to CASE Team ASAP – Send to Michael Mutmansky, Simon Lee, Jim Benya.
- CASE Team to follow-up with the CEC (Jim Benya) on the possibility of a PAF for aggressive lighting controls settings (equipment with maximum delay times that are well below the maximum 30 minutes).

◆ Nonresidential Lighting – Partial-On Occupancy Sensors

- CASE Team: This measure shows high effectiveness because of the multi-lighting baseline we already have in the code. Without this, the energy savings that are gained here (which are incremental compared to the 'first' control measure in the space), will be difficult to achieve cost-effectively.
- CASE Team will consider Bruce Whitehill's (Ecology Action) concerns about the lights coming on in a dimmed state – something that is technically very challenging. Often leads to flicker problems.



- CASE Team: It was not our intent to change the Title 20 requirement. Our proposal is to program them to 20 minutes or less, and that should be the bare minimum.
 - CASE team will clarify language and make consistent with ASHRAE 90.1 to the extent possible.
- Bruce Whitehill (Ecology Action): Is the proposed change to require either-or manual-on and partial dimming in all of the areas where the requirement applies?
 - CASE Team: The proposal is to permit EITHER option to satisfy the requirement. We want the designer to choose whichever solution they feel is the most appropriate for the circumstances. In many cases, that may be the manual-ON (vacancy sensor) approach.
- ♦ **Nonresidential Lighting – Outdoor Lighting Power Allowance (LPA)**
 - RP 20 discussion: CEC to coordinate with CASE Team to send a letter to IES. Time is of the essence.
 - All right-of-way is exempt from Title 24, but that does not include privately owned roads and paths on a property. There aren't many tunnels or bridges/overpasses on properties, but some larger properties do include these structures. They are currently exempted in the language, but don't need to be through the existing infrastructure, as there are comparable allowances currently in the tables.
- ♦ **Nonresidential Lighting – Outdoor Lighting Controls (including Bi-level controls)**
 - The code already requires occupancy sensors for all poles under 24 ft., with exceptions for only three specific space types, and exception for all poles over 24 ft. We are not proposing to change the 24 ft requirement, so will not be changing the occupancy control requirements for the majority of space types. We are only proposing to remove the exception for two of the three space types.
 - Cheryl English (Acuity) to follow up with CASE Team regarding the option for specific products to be turned off, while rest of parking lot would be 40-80% level.
 - Sales frontage is the perimeter of a sales area, basically the street or public way. The definition doesn't give actual sizes or proportions. CASE Team may look into clarifying this definition.

MEETING NOTES

These notes summarize the decisions that were made as a result of the IOU-sponsored stakeholder meeting that occurred on May 15, 2014.

Overview of 2016 Title 24 Development

- ♦ Mike McGaraghan (Energy Solutions) presented
- ♦ Presentation available here: http://title24stakeholders.com/wp-content/uploads/2014/05/Indoor-and-Outdoor-Lighting-Stakeholder-Meeting_May15_2014.zip
- ♦ No comments or questions received.



Residential Lighting

- ◆ David Douglass-Jaimes (TRC Solutions, on behalf of the Statewide IOU C&S Team) and Mike McGaraghan (Energy Solutions, on behalf of the Statewide IOU C&S Team) presented
- ◆ Presentation available here: http://title24stakeholders.com/wp-content/uploads/2014/05/Residential-Lighting_Stakeholder-Meeting_May15_2014.pdf

Comments and Feedback:

- ◆ John Martin (IALD): The current requirements haven't gone into effect yet, so the references to "current practice" are unclear.
 - CASE Team: These slides represent the practice under the 2013 code, which will take effect July 1, 2014.
- ◆ John Martin (IALD): The proposed requirements are based on new construction, and the overall savings projections are based on "all houses"; does this mean "all houses built after 2017?"
 - CASE Team: Yes.
- ◆ Cheryl English (Acuity): Are these costs for the average home?
 - CASE Team: Yes.
- ◆ Bruce Whitehill (Ecology Action): Has there been any consideration to make these same changes in the non-residential code, particular in lighting retrofits?
 - CASE Team: No the nonresidential code is based on lighting power density so it uses an entirely different approach.
- ◆ Michael Lindsey (HLB): With continuing to allow screw base sockets and assuming LED replacement lamps, how can we accurately assume that people will keep that instead of replacing with a screw base halogen/incandescent?
 - CASE Team: That is the premise of this proposal, that if we install very high quality products, that provide high color rendering, and don't flicker, buzz, that turn on quickly, that dim smoothly, and actually last 10 years, that we will greatly reduce anyone's desire to replace these.
- ◆ Noah Horwitz (NRDC): To prevent consumer disappointment and replacement of the efficient LED bulb, what is being done to ensure good dimming performance (e.g. bulb will work with installed dimmer without hum, flicker)? Have you considered any switching requirements to minimize kitchen where all 8 cans might be tied to one circuit, so it's either all on or all off.
 - CASE Team: We're proposing a number of requirements throughout the dimmed range, as well as compliance with SSL7A. As for the number of cans per circuit, we're investigating this and would appreciate comments.
- ◆ David Wilds Patton: Does this proposal apply to ALL screw base sources, including say candelabra base? And how about bi pin lamps?
 - CASE Team: Yes, it applies to all replacement lamps and all fixtures that utilize base types historically classified as low efficacy .
- ◆ Bruce Whitehill (Ecology Action): CFL performance is also compromised in sealed cans.



- ◆ John Martin (IALD): On slide 13, it seems problematic to call an Edison or medium screw-based socket an “incandescent base”.
- ◆ Charles Knuffke (Wattstopper): There are currently Vacancy Sensor requirements for certain residential spaces. Would these requirements be eliminated with this proposal?
 - CASE team: No, all current controls requirements would be maintained for fixtures that use high quality high efficacy lamps to qualify.
- ◆ Noah Horwitz (NRDC): Given the 45 lpw requirement for GSL lamps, it seems the bulk of the opportunity is with down lights/recessed cans. Can the case team provide separate analysis on number of cans and the options of dedicated vs screw based.
 - CASE Team: Yes, we have that in the analysis and it will be in the CASE report.
- ◆ David Wilds Patton: Anecdotally I have found more flicker problems with permanently installed LED recessed than with replacement lamps. That doesn't address lamp life or other inherent problems, though.
- ◆ David Shiller (Lighting Solution Development): My understanding is that the NEMA dimming standard dimmers will only deliver improved performance when paired with a yet to be finalized NEMA standard for dimming lamps.
 - CASE Team: No, the NEMA dimming standard applies to both light engines and dimmers.
- ◆ Michael Jouaneh (Lutron): Is this for Indoor lighting only? The current Title 24 2013 Standard does not require control of outdoor lighting that is not attached to the building. Will this be fixed for the 2016 Standard so that landscape lighting not attached to a building can be controlled?
 - CASE Team: This proposal does not address landscape lighting not attached to a building.
- ◆ Richard Greenburg (SCE): Prediction: By 2017 the flicker problem will be solved. Make the T24 spec require low flicker threshold and there will be no issues. Also, I support the idea of requiring recessed cans to come with pigtail connectors, which is a very low cost fixture, then require retrofit kits to be in all recessed cans, rather than screw-based LEDs.
- ◆ Al Safarikas (Cree): Cree also conducted a study in 2012 that showed the #1 issue among consumers of LED bulbs was light quality.
- ◆ David Shiller: The cost-effectiveness assumptions were based on LED lamps, but the proposal is tech neutral?
 - CASE Team: Yes.
- ◆ Richard Greenburg (SCE): For power factor, consider a requirement that VAR at minimum light output must not exceed VAR at full light output.
- ◆ Terry McGowan: Eliminating the 2700K minimum requirement would run counter to your desire to provide LED dimming that is satisfactory to consumers. Manufacturers are now beginning to offer products that "warm dim" or lower chromaticity with dimming similar to incandescent lamps.
- ◆ David Wilds Patton: 10% measured dimmable is not acceptable to me since my experience tells me that sets the low end of the dim curve too high for end-users to accept it. I think at least 5% and even down to 1% is truly what most customers believe should exist. Again, Measured vs. Perceived is important.



- ◆ Noah Horwitz (NRDC): How would the building inspector know the bulb complies with all these requirements? Would there be a CA bulb sticker and requirement for manufacturer to submit data to CEC?
 - CASE Team: Yes, we are considering that products would be certified to the CEC database and also carry a label.
- ◆ Richard Greenburg (SCE): If cooler temperatures are allowed in Residential interior Title 24, there should be specific application requirements to avoid installation in areas that reduce customer satisfaction, in my opinion.
- ◆ David Wilds Patton: I have had some client feedback that 2200K is preferable.
- ◆ Bruce Whitehill (Ecology Action): Color Changing LEDs is cost prohibitive, and ENERGY STAR is not prepared to certify color changing.
- ◆ Noah Horwitz (NRDC): Manufacturers, what percentage of your sales are high CCT?
 - Al Safarikas (Cree): For Cree, <20 to 25 percent in 2013/2014 at retail for any particular lamp type.
- ◆ David Wilds Patton: Outdoor LED adoption in landscape lighting is increasing just because of smaller infrastructure. I don't see landscape lighting going back to incandescent.
- ◆ In this proposal, will dimmers or vacancy sensors be required in rooms OTHER than kitchens, bathrooms, garages, laundry rooms, and utility rooms? Or will these controls be required for all screw-based sockets to ensure hardwired energy-saving control is in place in case low efficacy lighting is swapped in place of high efficacy lighting?
 - CASE Team: All current controls requirements will be maintained for fixtures that use high quality high efficacy lamps to qualify.
- ◆ David Shiller: What percentage of tested LED lamp samples passed all six criteria?
 - CASE Team: Very few, only one or two – though these were products selected for testing over 1.5 years ago. We have seen a number of products introduced in the past few months that claim to meet all of these specs (to qualify for rebates), and we expect others soon.
 - Richard Greenburg (SCE): We now have over 30 products listed that are eligible for rebates meeting the CEC voluntary spec, though some of those are the same product branded by different companies.
- ◆ Pekka Hakkarainen: The proposed JA8 is not technology independent as claimed for a very simple reason: the proposed compatibility standard NEMA SSL7A applies to only Solid State Lighting products, as the name suggests. No other lamps can meet it by virtue of the scope.
 - CASE Team: This is a good point and something we will have to consider.
- ◆ David Shiller: Can you comment on SSL7B?
 - Pekka Hakkarainen: Work on SSL7B has started, the scope is being defined but will almost certainly also apply to SSL products only.
- ◆ Terry McGowan: You should allow for variable chromaticity products.
- ◆ John Martin (IALD): Can you calculate or estimate the percentage savings for “whole house” compared to presently in force standard, as opposed to 2013 Standard?
 - CASE Team: Yes.



Follow Up Items

- CASE Team is proposing a number of requirements throughout the dimmed range, as well as compliance with SSL7A. As for the number of cans per circuit, CASE Team is investigating this and would appreciate comments.
- CASE Team will consider the proposed JA8 per comments from Pekka Hakkarainen.



Nonresidential Lighting – Lighting Power Densities (LPDs)

- ◆ Michael Mutmanky (TRC Solutions, on behalf of the Statewide IOU C&S Team) presented
- ◆ Presentation available here: http://title24stakeholders.com/wp-content/uploads/2014/05/NR-Ltg-1-Indoor-LPDs_Stakeholder-Meeting_May15_2014.pdf

Comments and Feedback:

- ◆ John Martin (IALD): The general trend in ASHRAE/IES 90.1 and ICC energy codes has been to increase control requirements instead of reducing LPDs further, which has also been true for T24. Reducing LPD values can give a false picture of savings without deeper analysis.
- ◆ Bruce Whitehill (Ecology Action): I notice that the several areas that typically are high ceiling (Auditorium, Hotel Function, Lobbies) all have fairly steep reduction. The LED industry has been fairly slow to produce 8" can retrofits typically found in these spaces. The products are cost prohibitive and not readily available.
 - CEC (Jim Benya): New LED products are coming on the market all the time, and higher wattage downlights are now available. The prices are rapidly eclipsing the alternates (ceramic MH downlights). This should not be an issue in the 2017 timeframe.
- ◆ Bruce Whitehill (Ecology Action): At 0.7 w/sq. ft. most equipment rooms are already dimly lit. The equipment itself creates shade throughout the space. A reduction here may have safety concerns. In the retrofit world we have to deal with what is installed. We do not have a solution for 8" cans. 8" cans are the standard for high ceiling lobbies, and auditoriums.
 - CASE Team: Most equipment rooms do not require even lighting throughout the area, and this general lighting is not capable of providing suitable illumination for real maintenance beyond replacing a filter, for example. Supplementary lighting in the form of drop lights would be required regardless in these circumstances. The intent of the lighting allowance is basic navigation in the space, and to the extent that it aids in maintenance is considered an added benefit.
- ◆ Michael Lindsey (HLB): The "waiting area" section I believe is similar in design programming to the "Lobby Area". I would suggest revisiting and perhaps matching the proposed LPD for the "Lobby - Main Entry" or "Lobby - Hotel".
 - CASE Team: There was discussion about this while the evaluation of the design criteria occurred. We determined that the criteria and design circumstances are slightly different, and therefore warrant the different allowance values that are in the table (and this is consistent with the allowance tables from previous revision cycles).
- ◆ Meg Waltner (NRDC): For the values in Table 140.6-C that you aren't proposing to change, were these developed using T-8 fixtures?
 - CASE Team: These are based primarily on T8 and possibly other lamp technologies, depending on the applications and the period of time that the calculations were performed. Most of them are newer (changed in the last revision cycle, or the previous one), and would certainly have used HPT8 if they were done in the last revision cycle. Older values may have used T8. Some applications (warehouse, for example), likely used MH lamps or other products depending on the application as a point of baseline.



- ◆ John Martin (IALD): We will ask the IALD members on the ASHRAE/IES 90.1 Lighting Subcommittee to review the numbers and provide some insight as to how they settled on the current LPD numbers for areas that are widely divergent from what you show.

Follow Up Items

- ◆ John Martin will ask the IALD members on the ASHRAE/IES 90.1 Lighting Subcommittee to review the numbers and provide some insight as to how they settled on the current LPD numbers for areas that are widely divergent from what you show.



Nonresidential Lighting – Partial-On Occupancy Sensors

- ◆ Michael Mutmansky (TRC Solutions, on behalf of the Statewide IOU C&S Team) presented
- ◆ Presentation available here: http://title24stakeholders.com/wp-content/uploads/2014/05/NR-Ltg-2-Partial-ON-Occupancy_Stakeholder-Meeting_May15_20141.pdf

Comments and Feedback:

- ◆ Bruce Whitehill (Ecology Action): The incremental savings of additional of multiple controls isn't that great. Your savings may be overstated from the study shown on slide 6 (LBNL's Meta-Analysis) – because that was for all the controls layered on top of each other.
 - CASE Team: This has to do with interactive effects which are difficult to quantify. Most of the studies show a single measure or two, and many times do not have the ability to extract the attribution of any single measure from the set without a carefully designed field measuring process or very sophisticated computational modelling, if it is possible at all. This measure shows high effectiveness because of the multi-lighting baseline we already have in the code. Without this, the energy savings that are gained here (which are incremental compared to the 'first' control measure in the space), will be difficult to achieve cost-effectively.
 - CEC (Jim Benya): We've designed and measured spaces for every kWh we can find. We've saved 92 percent of the lighting energy compared to baseline by using everything layered possible. They have to be tuned to the specific space and have quality lights. It's possible on some that LBNL is reporting accurate results.
 - CASE Team: We recently measured a 93 percent saving from baseline with combined measures in a warehouse space, so achieved similar results with Jim Benya as well.
 - Bruce Whitehill (Ecology Action): I'm mostly concerned about the lights coming on in a dimmed state – something that is technically very challenging. Often leads to flicker problems.
 - CASE Team will consider this.
- ◆ Charles (Wattstopper): Why only spaces with occupancy sensors? Why wouldn't manual ON be considered for all spaces as opposed to those with just occupancy controls?
 - CASE Team: Some open office spaces have time-based systems. Suggest manual on can be strategy for occupancy spaces and time-clocked spaces. Too many engineers are turning on office spaces at 6:00 a.m. when occupants actually come in at 8:00 a.m. instead of having the occupants override and turn on the lights when they get into the building. But we will follow up with you to discuss.
- ◆ Michael Jouaneh (Lutron): For 90.1-2013 spaces require automatic lighting shut-off within 20 minutes of vacancy. The requirement is that occupancy sensors have to be set to 20 min timeout or less but the sensors themselves can have settings that are higher than 20 minutes. Changing Section 110.9 in Title 24 is a requirement for the control itself (not the space) to have a timeout setting of no more than 20 minutes. This is problematic since nearly all occupancy sensors on the market today have timeout setting larger than 20 minutes. Can we simply follow the 90.1-2013 requirement for certain spaces to have lighting automatically shut-off within 20 min of vacancy and not mandate the sensor itself to have a max setting of 20 minutes?



- CASE Team: It was not our intent to change the Title 20 requirement. The products now have limits because of Title 20, for which the standard is 30 minutes. Our proposal is to program them to 20 minutes or less. And that should be the bare minimum – I think most designers are doing way less than 20 minutes – but the code currently has no specific guidance for this..
- Bruce Whitehill (Ecology Action): Can we clarify language so it's consistent with ASHRAE?
 - CASE team: We will clarify language and make consistent with ASHRAE 90.1 to the extent possible.
- CASE Team: We would need to define the new terms if we go with automatic partial-on.
 - CEC: Clarify this is an automatic feature whereas the other is a manual.
 - Bruce Whitehill (Ecology Action): On the 20-minute program time say it's no MORE than 20 minutes.
- ◆ CEC (Jim Benya): The 20 minute limit originated with fluorescent systems, where frequent on/off shortened lamp life. Now, with LED, maybe we don't need 20 minutes in all cases. Should we investigate?
 - CASE Team: It's a very interesting question. I would support a PAF of that nature.
 - CEC: We agree.
- ◆ Bruce Whitehill (Ecology Action): Can you be more specific about areas where this requirement applies. Is it only the four areas noted where occupancy sensors are specifically required, or does any area where an occupancy sensor is installed now have this requirement? As I understand partial dimming we are now being asked to turn on lamps in a dimmed state. This is very problematic with fluorescent especially 28W & 25W 4' T8's. Has this strategy been vetted with lamp/ballast manufacturers for viability?
 - CASE Team: You shouldn't have to have low wattage T8s in dimming systems to meet existing design guidelines. Some of the low wattage lamps are not recommended for dimming, Jim, do you know if they permit dimming on the 28 watt lamps now? That was previously a problem for the lamp manufacturers.
 - CEC (Jim Benya): 28W lamps are dimmable, 25Ws are not. But, why use them at all? You should just tune your fixtures, not go to low wattage T8s.
 - Bruce Whitehill (Ecology Action): But in existing buildings, there are often too many fixtures, so to hit the lowering LPDs, we have to use low wattage T8s, and often 28Ws. And with those, you can dim them down from full but you can't turn them on dimmed.
 - CASE Team: Ok, we'll have to follow up with you on that issue.
 - Bruce Whitehill (Ecology Action): If they have dual switching, they can do inboard outboard set up, but if its single switched we can't.
- ◆ Bruce Whitehill (Ecology Action): Is the proposed change to require either-or manual-on and partial dimming in all of the areas where the requirement applies?
 - CASE Team: The proposal is to permit EITHER option to satisfy the requirement. We want the designer to choose whichever solution they feel is the most appropriate for the circumstances. In many cases, that may be the manual-ON (vacancy sensor) approach.
- ◆ Bruce Whitehill (Ecology Action): Lastly, if we are doing Modifications-in-place and below the 85 percent LPD threshold, will part dimming be required, or exempt?



- Based on the current infrastructure of the requirements in Section 141.0, the partial-ON or manual-ON control approach will be required regardless of the percentage of the LPD. Since Section 130.1(b) is triggered regardless of the LPD, and Section 130.1(c) is also triggered. At this point, it does not appear to be a problem to continue with this approach. Note that bi-level switching is permitted in this 'below 85%' realm, which does still satisfy the partial-ON requirements.

Follow Up Items

- ◆ CASE Team: Please get us info from the field ASAP since we only have one month to get our proposals in. I haven't heard a lot of feedback from designers who are using the current code.
 - We can incorporate this feedback into CEC public workshop on June 19th.
 - Charles Knuffke (Wattstopper) will get feedback to CASE Team ASAP – Send to Michael Mutmansky, Simon Lee, Jim Benya.
- ◆ CASE Team to follow-up with the CEC (Benya) on the possibility of a PAF for aggressive lighting controls settings (equipment with maximum delay times that are well below the maximum 30 minutes).



Nonresidential Lighting – Outdoor Lighting Power Allowance (LPA)

- ◆ Michael Mutmansky (TRC Solutions, on behalf of the Statewide IOU C&S Team) presented
- ◆ Presentation available here: http://title24stakeholders.com/wp-content/uploads/2014/05/NR-Ltg-6-Outdoor-LPA_Stakeholder-Meeting_May15_2014.pdf

Comments and Feedback:

- ◆ LED as the design baseline
 - CEC (Jim Benya): LED is clearly the right baseline for 2017. The industry is moving there very rapidly, and has essentially established LED as the design baseline for many exterior lighting products, even today. By 2017, the shift will be all but complete.
 - CASE Team: We agree. Our research indicates that the cost of LED systems is already favorable in many cases, and then performance is superior as well. By 2017, even the more difficult product for cost effectiveness are going to be viable without a stretch. This change is anticipated to result in a 40 percent reduction in connected load, and an even greater total energy savings because LED is also such a superior framework for applying more advanced exterior controls than basic photocell methods.
- ◆ ATM lighting
 - CEC (Jim Benya): Conflict with banking industry.
 - CASE Team: Not a conflict, we just need to address their requirements. The CBC uses clearly incorrect lighting terminology, but it is also apparent what was intended, and we can anticipate that in the code. ASHRAE has a similar allowance, and I presume it was built around the same language, (but there may be another set of requirements out there from another state possibly that they are accommodating as well).
 - CEC (Jim Benya): There may be some specific jurisdictional reason that the ATM requirements are not in the code.
 - CASE Team: Possibly. We are not aware of this, and if that turns out to be the case, then they can continue to be exempted from the LPD (indoor) and LPA (outdoor) limits.
- ◆ RP-20 Discussion
 - CEC (Mazi): Must we follow RP-20 or is there an alternative? We should be able to explain the rationale to our constituents.
 - CASE Team: CEC could distance themselves from the requirements that do not follow a public, open forum.
 - Cheryl English: RP-20 document has gone through the technical committee. Balloting is due May 29th.
 - CEC might want to send a letter to IES Committee Chair to request clarification. Time is of the essence. It may delay the vote, may put it out for public review.
 - CASE Team: We agree that this is a very good approach at the least. The IES needs to receive feedback about the potential questions of transparency in their Recommended Practice development.



- ◆ Cheryl English (Acuity): Do you think there are very many tunnels that would be covered by Title 24? DOT is exempt, right?
 - CASE Team: All right-of-way is exempt from Title 24, but that does not include privately owned roads and paths on a property. There aren't many tunnels or bridges/overpasses on properties, but some larger properties do include these structures. They are currently exempted in the language, but don't need to be through the existing infrastructure, as there are comparable allowances currently in the tables.

Follow Up Items

- ◆ CASE Team to coordinate with CEC on a memo to IES.



Nonresidential Lighting – Outdoor Lighting Controls (including Bi-level controls)

- ◆ Michael McGaraghan (Energy Solutions, on behalf of the Statewide IOU C&S Team) presented
- ◆ Presentation available here: http://title24stakeholders.com/wp-content/uploads/2014/05/Outdoor-Lighting-Controls_Stakeholder-Meeting_May15_20141.pdf

Comments and Feedback:

- ◆ What is the difference between a time clock and part night?
 - Part night gives you light input and energy reduction part of the night. Benefit of part night for these exemptions is that there are some areas where people don't want occupancy sensors since they want lights on when people aren't around (like sales car lots).
 - Time clock is designed to be able to override
 - We're not in the position to determine if lighting is required after a certain time; if we have an ON (auto or manual) initiation and an OFF (auto or manual); this would be consistent to lighting outdoor ordinances and save energy.
- ◆ Cheryl English (Acuity): Can you explain why you suggest that part night controls are not programmed to meet the requirements?
 - CASE Team: That is our understanding, particularly as more and more part-night controls are wirelessly controlled. And there is little guarantee in the code language right now that the controls get programmed effectively or to optimize savings. Or, if the hours of operation change or space types change etc., the part night controls may not get re-programmed. Likely to be overridden.
- ◆ Cheryl English (Acuity): Are you suggesting that the occupancy sensor requirements would still apply to fixtures mounted below 24 feet? Sensors are a great solution, but there may be some applications where the space will prevent a sensor from detecting motion (large trucks in the area, fog, etc.). So I prefer seeing an approach that allows design flexibility in the case where a sensor may not make sense.
 - The code already requires occupancy sensors for all poles under 24 ft., with exceptions for only three specific space types, and exception for all poles over 24 ft. We are not proposing to change the 24 ft. requirement at all, so will not be changing the occupancy control requirements for the majority of space types. We are only proposing to remove the exception for two of the three space types.
- ◆ Why was 40 to 80 percent selected? Should that reduction be allowed to go lower than 80 percent, now that we're going to an assumed LED base case?
 - If a facility chooses to have an area where they want to dim more than 80 percent, the code currently doesn't allow that. Why not allow them to do 100 percent?
 - CASE Team: We can look into writing the Standard so they're not excluded from doing MORE than 80 percent.
 - Cheryl English (Acuity): We want the option for specific products to be turned off, while rest of parking lot would be 40 to 80 percent level.



- ◆ Sales frontage is the perimeter of a sales area, basically the street or public way. The definition doesn't give actual sizes or proportions. CASE Team may look into clarifying this definition.
- ◆ Cheryl English (Acuity): You're going to get pushback from these industries around dimming at night.
 - CASE Team: Does dimming down at night cause issues for marketing and safety? That was original basis for the exemption, but now we've started to see a lot of facilities employing these dimming systems, so we wanted to revisit. It may be that ramping up the lighting when detecting motion actually increases safety and/or marketing potential? CASE Team is looking into these questions with the affected industries.
- ◆ In regards to lighting retrofits, is there any consideration in the next code to set a fixture threshold on the time clock requirement. For small installations with just a few luminaires, the time clock becomes cost prohibitive? Can we possibly get an exception if we install a photocell and auto-occupancy-off?

Follow Up Items

- ◆ Cheryl English (Acuity): We want the option for specific products to be turned off, while rest of parking lot would be 40 to 80 percent level.
 - Follow up with CASE Team so we can accommodate this.