

Meeting Notes



Notes from 2022 Title 24, Part 6 Code Cycle
Utility-Sponsored Stakeholder Meeting for:

Lighting

Posted March 30, 2020

Meeting Information:

Meeting Date: March 3, 2020

Meeting Time: 8:30am – 12:00pm PST

Meeting Host: California Statewide Utility Codes and Standards Team

Meeting Agenda

Time	Topic	Presenter
10 minutes prior to call	Live Attendee Poll	
8:30 am	Meeting Guidelines	Statewide CASE Team
8:35 am	Opening Remarks from the California Energy Commission	Energy Commission
8:40 am	Overview and Welcome	Statewide Utility Codes and Standards Representative
8:45 am	CASE Presentation I: Nonresidential and Multifamily Outdoor Lighting Sources	Annie Kuczkowski, Michael Mutmansky
10:15 am	CASE Presentation II: Nonresidential Daylighting	Jasmine Shepard
10:45 am	CASE Presentation III: Nonresidential Grid Integration: Demand Responsive Lighting	David Jagger
11:15 am	CASE Presentation IV: Nonresidential Indoor Lighting	Marissa Lerner, Chris Uraire
11:45 am	Wrap Up and Closing	Statewide CASE Team

Meeting Attendees

First Name	Last Name	Email	Affiliation
Statewide Utility Codes and Standards Team			
<i>Utility Staff</i>			
James	Kemper	James.Kemper@ladwp.com	Los Angeles Department of Power and Water
Miguel	Malabanan	miguel.malabanan@ladwp.com	Los Angeles Department of Power and Water
Taro	Zabalaga	taro.zabalaga@ladwp.com	Los Angeles Department of Power and Water
Kelly	Cunningham	KACV@pge.com	Pacific Gas & Electric
John	Barbour	jbarbour@sdge.com	San Diego Gas and Electric
Jeremy	Reefe	jmreefe@sdge.com	San Diego Gas and Electric
Josh	Rasin	joshua.rasin@smud.org	Sacramento Municipal Utility District
Christopher	Kuch	christopher.kuch@sce.com	Southern California Edison Company
<i>Codes and Standards Enhancement (CASE) Team Members</i>			
Alanna	Torres	atorres@energy-solution.com	Energy Solutions
Christopher	Uraine	curaine@energy-solution.com	Energy Solutions
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Heidi	Werner	hwerner@energy-solution.com	Energy Solutions
Jasmine	Shepard	jshepard@energy-solution.com	Energy Solutions
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Marisa	Lee	mlee@energy-solution.com	Energy Solutions
Tasha	Harvey	tasha.harvey@arup.com	Arup
Nancy	Clanton	nancy@clantonassociates.com	Clanton and Associates, Inc.

Annie	Kuczkowski	annie@clantonassociates.com	Clanton and Associates, Inc.
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Elizabeth	McCollum	emccollum@trccompanies.com	TRC Solutions
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Jon	McHugh	jon@mchughenergy.com	McHugh Energy Consultants
California Energy Commission			
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Daniel	Wong	daniel.wong@energy.ca.gov	California Energy Commission
Stakeholder Attendees			
Philip	Catalano		16500
Tanya	Hernandez		ACUITY BRANDS
Jeremy	Wikstrom		CalCERTS
Jeanne	Fricot		Center for Sustainable Energy
Genesis	Tang		CPUC
Farhang	Beik		DNV GL Energy Services USA, Inc.
George	Nesbitt		Environmental Design / Build

Kyaw	Soe		Fard Engineers, Inc.
Gina	Rodda		Gabel Energy
Tony	Squillace		Hackney Electric
Richard	Triesenberg		Innovative Electrical
Bernard	Bauer		Integrated Lighting Concepts
John	Barentine		International Dark-Sky Association
Pete	Strasser		International Dark-Sky Association
Jeff	Davis		Intertek
Stephen	Selkowitz		Lawrence Berkeley National Laboratory (LBNL)
Gary	Smith		Lighting and Watercon Supply
Monique	Davis		Midpen Housing
Shelley	Brock		MidPen Housing Corporation
Mario	Martinez		National Lighting Contractors Association of America (NLCAA)
Michael	Scalzo		National Lighting Contractors Association of America (NLCAA-CETI)
Peter	Schwartz		PSA
Vrushali	Mendon		Resource Refocus LLC
Pamela	Micks		RH
Jim	Hines		Schetter Electric
Neall	Digert		Solatube International, Inc.
Jill	Hootman		Trane Technologies
Drew	Felker		Trutech Energy Services Inc.

Christopher	Holstein		Universal Lighting Technologies
Wayne	Alldredge		VCA Green
Charles	Knuffke		Wattstopper/Legrand

Meeting Resources

1. [Agenda](#)
2. [Presentation Slides](#)
3. Submeasure Summaries
 - a. [Nonresidential Outdoor Lighting Zone Reclassification](#)
 - b. [Multifamily Outdoor LPA](#)
 - c. [Nonresidential Daylight Dimming to 10 Percent](#)
 - d. [Nonresidential Demand Responsive Indoor Lighting](#)
 - e. [Nonresidential Multi-zone Occupancy Sensing in Large Offices](#)
 - f. [Nonresidential Update Lighting Power Densities \(LPDs\)](#)

Meeting Notes

1.1 CASE Presentation I: Nonresidential and Multifamily Outdoor Lighting Sources

1.1.1 Lighting Power Allowances (LPA) for General Hardscapes (Annie Kuczkowski)

1. Wayne Alldredge (VCA Green): Motion triggered lighting adds to security because it calls attention to the zone where motion occurred.
 - a. Nancy Clanton (Clanton and Associates, Inc.): Yes, we are also looking at motion sensing including distribution, latency and motion sensing technology.
 - b. Annie Kuczkowski (Clanton and Associates, Inc.): We are currently studying motion sensors and how they operate. It will be up to the hardscape end user to truly determine usage.
2. Wayne Alldredge (VCA Green): UC Davis did a study and found that motion controls prevented attacks on campus.
 - a. Annie Kuczkowski (Clanton and Associates, Inc.): This is a good point. Even if this just helps find more occupied areas.
 - b. Nancy Clanton (Clanton and Associates, Inc.): Yes Wayne, you are correct. The motion sensors were on very short poles. DOE NGL and VTTI are performing research on many different types of motion sensors. The results of this research are being finalized by PNNL and VTTI, preliminary results show that latency is an issue with many of the sensors.
 - c. Bernard Bauer (Integrated Lighting Concepts): Helps law enforcement in after-hours situations as well.
 - d. Wayne Alldredge (VCA Green): AI control of security cameras trigger recording when anomalies happen in the field of view - like when lights get brighter.
3. Jon McHugh (McHugh Energy Consultants Inc.): Security cameras, do they need more or less light than the new RP-8 recommended levels? For hardscape in parking lots.

- a. Nancy Clanton (Clanton and Associates, Inc.): It depends on the type of cameras. Annie showed a slide that shows that B&W do not. Color cameras may need a small amount more.
- b. Bernard Bauer (Integrated Lighting Concepts): I have color security cameras on site they still operate in the very low light areas just B&W but still work
4. Jon McHugh (McHugh Energy Consultants Inc.): What is the radius of detection for static cameras? Similar question for cameras with pan, tilt etc?
 - a. Christopher Uraine (Energy Solutions): **We will meet to discuss in more detail after this meeting.**

1.1.1 Lighting Zone Reclassification (Annie Kuczkowski)

1. Peter Schwartz (PSA): Are the proposed lighting levels incorporate spectral requirements to accommodate Circadian issues for people, flora and fauna?
 - a. Nancy Clanton (Clanton and Associates, Inc.): We are using 3000K for all of our analysis.
 - b. Bernard Bauer (Integrated Lighting Concepts): Yes, agree with 3000K currently doing this in my designs, exterior site in most applications.
2. Jon McHugh (McHugh Energy Consultants Inc.): Which IES standard does this change in definition for LZ1 align with?
 - a. Nancy Clanton (Clanton and Associates, Inc.): The best current one is RP-33. But the RPs are being updated in August 2020.
 - b. Christopher Uraine (Energy Solutions): For the lighting zone reclassification, it is aligning with IES/IDA Model Lighting Ordinance (MLO).
 - c. Nancy Clanton (Clanton and Associates, Inc.): They are also outlined per the IDA/IES MLO RP-33.

2.1.1 Multifamily Lighting Power Allowance Update (Michael Mutmanskyy)

1. Bernard Bauer (Integrated Lighting Concepts): Comment was maintenance cost not calculated because LED outlives 15 year window What about maintenance cleaning? for outdoor?
 - a. Annie Kuczkowski (Clanton and Associates, Inc.): The same cleaning cycle would be applied for the general hardscape areas in both the 2019 and 2022 code cycles so the cleaning maintenance ends up being a wash.
2. Jon McHugh (McHugh Energy Consultants Inc.): Annie, first cost does this drop with lower LPA or are the difference in cost between a lower wattage and higher wattage luminaire negligible?
 - a. Annie Kuczkowski (Clanton and Associates, Inc.): Jon are you talking about the capital costs? The cost difference between lower and higher wattage luminaires is minimal, about \$100 for a \$1500 luminaire. These drop a little bit with lower LPAs.
3. George Nesbitt (Environmental Design / Build): Mid-rise loaded corridor (3 stories) is "Low Rise Residential". In urban areas there is often no landscape area.
 - a. David Douglass-Jaimes (TRC): George, yes, thanks for these clarifications.
 - b. Kelly Cunningham (PG&E): We are supporting a proposal that would combine low rise and high rise into one section, so the line between the two will not be the same as in past cycles.
 - c. George Nesbitt (Environmental Design / Build): It is a misconception that there is a "non res code" and a "res code." There is only an energy code with applicable sections. Would a mixed-use building with retail occupancy need to use the other table, and now there are 2 tables we need to be aware of for mixed use? Multifamily can or does fall under both residential and nonresidential sections, and when you get to mixed

occupancy you are in nonresidential for parts anyways. I am worried about pulling "MF" into its own section(s) and duplication, and you will be in other sections of res and non res code that apply also.

- i. Kelly Cunningham (PG&E): We have a whole meeting just on this topic coming up. We will contact you for your input, if that is ok, to focus today on lighting.
 - ii. Payam Bozorgchami (Energy Commission): This discussion will cover overlap and any references between sections.
 - d. Michael Mutmansky (TRC): For interior, there will be two separate sections to be applied. We are talking about exterior here. If there is a single property with a multifamily development on it, you should be referring to this section and no others. If there is a development with multi-use, it would be treated as two properties.
 - e. Jon McHugh (McHugh Energy Consultants): Section 150.0(k)3 allows using res or NR outdoor lighting requirements for low rise multifamily with 4 or more units.
 - f. Elizabeth McCollum (TRC): We are not saying that you cannot have retail space with multifamily. This code is meant to cover multifamily, including mixed-use. We are dropping allowances for building types that are not really mixed-use in order to simplify the code. You can still build mixed-use, and still have retail space on the first floor.
4. Charles Knuffke (Wattstopper/Legrand): Exterior Lighting - any thought of changing the 40W exemption for Motion Detectors for all exterior fixtures back to separate wattages for pole, non-pole! and linear?
- a. Gina Rodda (Gabel Energy): I like the simplicity of enforcement to 40W, but that wattage does not seem appropriate for pole lights nor linear lighting in which we look at the power source a lot more often (LED)
 - b. Charles Knuffke (Wattstopper/Legrand): Linear is where it seems to have raised issues with designers.
 - i. Jon McHugh (McHugh Energy Consultants): Charles is this because one can control more than one luminaire in a canopy or along a wall where that is not really an option for pole mounted luminaires?
 - c. Michael Mutmansky (TRC): To clarify, any mixed use in a MF project will have to go through this section. It is intended for mixed use, but there are some situations where this section will not apply, in particular for interior spaces. For exterior, there should be no need to be applying the NR code on the property.

4.1 CASE Presentation II: Nonresidential Daylighting

1. **Poll: Based on your experience, do you anticipate a difference in feasibility in dimming to 10% versus dimming to 35% (current standard)?**
2. **Poll: Based on your experience, do you anticipate a difference in feasibility in dimming to 10% versus dimming to off?**
3. Tony Squillace (Hackney Electric): 10 percent is basically off the general luminaire puts off about 30 foot candles.
 - a. Jasmine Shepard (Energy Solutions) We have heard both in the last code cycle and this one that it was the turning off that was the issue, with end users and designers alike. 10 percent might be a good compromise, and is currently feasible with the current technology.
 - b. Jon McHugh (McHugh Energy Consultants Inc.): Tony, do you find that people perceive the luminaire as "OFF" when dimmed to 10 percent? Do people see the lights as ON

- even though little light is delivered to space (i.e. the luminance of the luminaire is higher than the surrounding ceiling?)
4. Monique Davis (Midpen Housing): Will additional dimming affect multifamily residential?
 - a. Jon McHugh (McHugh Energy Consultants Inc.): Daylighting controls not required in dwelling units.
 - b. Michael Mutmanskyy (TRC): @Monique, as Jon said, the residential units will not be impacted, but common spaces in MF may be impacted if they have the size/wattage/conditions to require daylight dimming.
 5. Tony Squillace (Hackney Electric): this will not make commissioning or testing harder. I am afraid it will lead to more decommissioning as you are basically turning off the lights. It is also important to clarify “general” lights. We typically see confusion and issues in conference rooms with multiple loads most of which are not “general” lights.
 - a. Drew Felker (Trutech Energy Services Inc.): I agree with Tony, dimming to off will lead people to disconnect the daylighting after commissioning.
 - b. Gina Rodda (Gabel Energy): I agree with Tony, general lighting needs to be made much clearer throughout the code and how these controls apply.
 - c. Tony Squillace (Hackney Electric): Typically the conference rooms do not have 120 watts of GENERAL lighting in the daylight zone. we constantly see engineering with as many as 4 loads split into daylighting. confusion at design, installation, and commissioning.
 - d. Jon McHugh (McHugh Energy Consultants Inc.): Tony the requirements for minimum light output is when daylight contribution is 150 percent of design illuminance. But I hear what your issue is. Scattering daylight with Venetian blinds drawn but open or with other redirecting elements is a great solution but not available in every space. Is this not available in the example spaces you are provided?
 - e. Tony Squillace (Hackney Electric): We do not have issue in our own design. We see these on the projects that are designed by others.
 6. Charles Knuffke (Wattstopper/Legrand): Any reason why healthcare was not exempted from daylighting, especially since Healthcare does not need to follow multilevel?
 - a. Gina Rodda (Gabel Energy): Healthcare was carefully crafted with OSHPD.
 - b. Simon Lee (Energy Commission): In the 2019 Cycle, inputs from the healthcare stakeholder group indicated daylighting control is appropriate.
 7. Tony Squillace (Hackney Electric): Our biggest issue with daylighting is that it gets used with windows. We see huge amounts of decommissioning, people complaining, when they sit with their backs to the window and get a shadow on their workplaces. This is a common set-up for small offices. For medical facilities, I would not require daylighting for any exam rooms.
 - a. Michael Scalzo (NLCAA -CETI) Classrooms is where I see this issue.
 - b. Jasmine Shepard (Energy Solutions): Office daylighting is a good point. **We would like to reach out to you after this call. We have thought about classrooms.**
 8. Wayne Alldredge (VCA Green): Why remove dim to off? Can you not leave it in and just set the minimum to 10 percent? That way if you have, say, an atrium, you can turn the lights off when daylight is available.
 - a. Jasmine Shepard (Energy Solutions): Dimming to off has much relevant, qualitative, anecdotal feedback. We are hoping instead of dimming to 35 percent, dimming to 10 percent could be the bridge to get us to daylight dimming to off whenever people are ready for it. We want to keep this measure moving forward while addressing stakeholder’s valuable input from their day-to-day experiences.

- b. George Nesbitt (Environmental Design / Build): Imagine, people disconnect or replace code required or features use to comply with the code.
- c. Wayne Alldredge (VCA Green): Agreed. But now you are eliminating an option that does not need to be mandatory.
- d. Charles Knuffke (Wattstopper/Legrand): Wayne - nothing prevents you from doing Dim to Off if you want - in fact you get an additional PAF if you choose to do so,
- e. Wayne Alldredge (VCA Green): But as soon as you give a value, electricians make that a setpoint. Installations of garage lighting is an example. "...at least 50 percent..." becomes "We have to set it to 590 percent" to the electricians. "Dim to off" could be defined as no greater than 10 percent. When you measure the amperage of the lighting circuit on most 0-10V lighting controlled lights, it never actually, turns off. You have electronic control draw present.

8.1 CASE Presentation III: Nonresidential Grid Integration: Demand Responsive Lighting

1. Drew Felker (Trutech Energy Services Inc.): This language is confusing.
2. Charles Knuffke (Wattstopper/Legrand): Current language in demand response (DR) is not just general lighting, but all lighting. Multilevel however is just general lighting.
 - a. Tony Squillace (Hackney Electric): Should only be GENERAL lights. Task and/or decorative should not apply especially task.
 - b. Drew Felker (Trutech Energy Services Inc.): I agree with Tony.
 - c. Gina Rodda (Gabel Energy): I agree with Tony.
 - d. Christopher Uraine: Thank you for your feedback. **We would be interested in discussing further with you.**
3. Charles Knuffke (Wattstopper/Legrand): It is hard enough getting DR in buildings using .5 watts per square feet total wattage. If non-general is eliminated, it will end up eliminates many more spaces in CA from the DR requirement.
 - a. Heidi Werner (Energy Solutions): Thank you for the feedback on DR controls applying to all lighting and multilevel applying to general lighting. There is ongoing confusion about whether DR controls applies to ALL lighting or just general lighting. **We will take this into consideration and propose a clarification.**
4. Cost-effectiveness calculations
 - a. Tony Squillace (Hackney Electric): Not sure what the average tester submits a year. I submit approximately 300 tests a year in Irvine, Orange county area.
 - b. Michael Scalzo (NLCAA -CETI) You are missing installation, handling, programming and testing cost.
 - c. Drew Felker (Trutech Energy Services Inc.): I have some concerns with this pathway. This is pretty far off. You are also missing the integrated components.
 - i. Christopher Uraine (Energy Solutions): Thank you for your feedback. **We will follow up with you to discuss in more detail.**
 - d. Peter Schwartz (PSA): One aspect to consider is that lighting control systems in small commercial and retail are capable of controlling small package HVAC units beyond typical TSTATs to enable DR. Did you consider co-benefits in the cost-effectiveness calculations? Such as controlling lighting and HVAC DR versus just lighting. Otherwise, in small commercial buildings, there usually are not sophisticated controls.
 - i. Heidi Werner (Energy Solutions): We have not been evaluating how one control system can be used to control both lighting and HVAC. Rather, we are looking at

lighting controls independently. **We will follow up with you after this meeting to discuss further.**

- e. Charles Knuffke (Wattstopper/Legrand): A bit of an issue on cost effectiveness calculation in that it is about Watts saved at the facility. But what is the value of a working electrical grid in CA?
5. **Poll: Is the acceptance test requirement necessary that requires demand responsive lighting to not reduce the combined illuminance from daylight and electric light below 50% of designed illuminance of any one space?**
- a. Michael Scalzo (NLCAA -CETI) This test will open a new can of worms for the ATTs.
 - i. **Action Item: Jon McHugh to follow up with Michael Scalzo about this “can of worms.”**
 - b. Drew Felker (Trutech Energy Services Inc.): It will be very difficult to integrate lighting and HVAC control from a real-world standpoint.
 - i. Philip Catalano: I agree with Drew. Lighting zones and HVAC zones are typically not the same.
 - c. Charles Knuffke (Wattstopper/Legrand): Because Daylighting is included in the acceptance test requirement, I doubt most CK-CATTs understand it fully.
 - d. Peter Schwartz (PSA): I have to disagree on the zoning question because they do not have to be treated as the same zone. For purposes of DR, the lighting control system can receive the OpenADR signal and then issue a command to the HVAC unit via the relay.

8.2 CASE Presentation IV: Nonresidential Indoor Lighting

8.2.1 Multi-zone Occupancy Sensing in Large Offices (Marissa Lerner)

- 1. Jon McHugh (McHugh Energy Consultants Inc.): Experience that you might have in states that enforce the 2018 IECC is very much of interest.
 - a. Marissa Lerner (Energy Solutions): We have spoken to some stakeholders who have implemented in Texas. If anyone has more information on this please reach out, we are very interested.
- 2. Tony Squillace (Hackney Electric): The proposal is no area larger than 600 square feet, is that correct? Is not the threshold right now no more than 5000?
 - a. Marissa Lerner (Energy Solutions): The current IECC language has 600 square feet as the maximum control zone size. There would then be multiple control zones.
 - b. Tony Squillace (Hackney Electric): The crossover of the zones is the main issue. If these zones do not cross over, there will be issues with people sitting between zones and there is the potential for dead spots.
 - c. Drew Felker (Trutech Energy Services Inc.): I agree that 600 Square feet is a little small to individually control.
 - d. Gary Smith (Lighting & Watercon Supply): 600 square feet sounds too small. Also, the proposal will add more complexity for what added benefit?
 - e. Jon McHugh (McHugh Energy Consultants Inc.): The added benefit has to do with diversity of schedules. As the areas gets smaller the number of full load hours of operation decreases
 - f. **Action item: Statewide CASE Team to reach out to Tony Squillace after meeting.**

8.2.2 Indoor Lighting Power Densities (Christopher Uraine)

- 1. Charles Knuffke (Wattstopper/Legrand): I just get extra worried when I see examples with open office lighting plans that are all 2x4s instead of linear. The question is what percent of spaces

took advantage of the small control area PAF - would tell if it is a naturally progression to move to small space control, or it is something being forced on designers.

- a. Marissa Lerner (Energy Solutions): Hi Charles, that is a great point and our team has looked into this after comments from the previous stakeholder meeting. The PAFs were introduced in 2013 and it has been hard to find usage data. Additionally, stakeholders have mentioned they no longer need to use the PAFs as they are not hitting the allowances after the 2019 Title 24, Part 6 updates.
2. Richard Triesenberg (Innovative Electrical): Just dealt with an open office plan that used integrated sensors, each luminaire was its own zone.
 - a. Richard Triesenberg (Innovative Electrical): I have observed that some luminaires were on others off, almost checkerboard like.
 - b. Jon McHugh (McHugh Energy Consultants Inc.): In regard to checkerboarding, the requirement is to dim unoccupied zone general lighting to 20 percent when unoccupied, but the room is still occupied. It would be great if you are aware of spaces which have implemented the the IECC style control - we would love to interview the occupants.
 - c. Marissa Lerner (Energy Solutions): That is a possible implementation. The code language also allows for dimming to 20 percent when a control zone is unoccupied, rather than fully turning off. This would reduce the checkerboard aesthetic appearance. However, the code language allows for flexibility in implementation, which has been supported by almost every stakeholder we have connected with.
3. Tony Squillace (Hackney Electric): There are very few designs that are using integrated controls. The PAFs are not needed or used as LED fixtures keep you way under allowed wattage installed.
4. Gary Smith (Lighting & Watercon Supply): A "Small control area PAF power adjustment factor" viz-a-viz the proposal for across the board 600 square-foot office lighting dimming is preferred here.
5. Drew Felker (Trutech Energy Services Inc.): So, are you saying the lights need to be above the 70 percent mark?
 - a. Jon McHugh (McHugh Energy Consultants Inc.): Lights are dimmed to 20 percent of full power or less.
 - b. Charles Knuffke (Wattstopper/Legrand): Jon - while the goal is going to lower light levels (but not off), I am afraid that using simple On/Off sensors that are less expensive and require no set up, would lead to the dreaded checkboarding mentioned above. Probably not Class A buildings but there are a lot of spaces that do not have that level of facility engineers to oversee their spaces.
6. Michael Scalzo (NLCAA -CETI) From a cost standpoint I feel that only integrated controls will be the solution.
7. Drew Felker (Trutech Energy Services Inc.): Please do an analysis of the various types of lights above 120LPW, we have had difficulty finding certain types of lights that meet the watts per square feet if the lights are not standard 2x4s.
 - a. Jon McHugh (McHugh Energy Consultants Inc.): Drew we have efficacy models for different size luminaires. At your leisure, please take a look at the results from the search of the DLC (DesignLights Consortium) database. Let us know if this does not match your experience.
8. Richard Triesenberg (Innovative Electrical): Integrated controls need to come down in pricing, the cost for the luminaires/controls were > \$110 square foot
9. Michael Scalzo (NLCAA -CETI) Looking at the controls start up, programming and testing (overlapping) has become an issue on large open office programming and testing. Integrated also support other than 2X4s luminaires.

10. Jon McHugh (McHugh Energy Consultants Inc.): JA8 rating provides for a high-quality light source. Part of that JA8 requirement is the maximum color temperature of 4000K. In some cases, such as retail spaces, they might try to have bluer lights which are not appropriate in residential applications. The thought is that the JA8 requirements could be too constraining for those commercial applications. The standard needs to change with the market.
 - a. Drew Felker (Trutech Energy Services Inc.): Using the rated wattage of the lamp makes sense to me. Most people are using LEDs anyway.
 - b. Bernard Bauer (Integrated Lighting Concepts): I do not believe JA8 belongs in nonresidential. It is okay for residential, but nonresidential is LPD based while residential is more quality oriented. This does not mean we do not address quality, but not all spaces need 90+ CRI and limited CCT.
 - c. Drew Felker (Trutech Energy Services Inc.): Most of the screw in types I have seen have been in restaurants or break areas in offices in hanging fixtures and are pretty easy to check. I agree with Bernard.
11. Tanya Hernandez (Acuity Brands): Did I miss a proposal to require JA8 sources for nonresidential?
 - a. Chris Uraire (Energy Solutions): No. The current language in Section 130, which is clarifying wattage and removing the exception for metal halide luminaires.
12. Kiri Coakley (Energy Solutions): I have seen 500 square feet as the threshold between medium and large offices.
 - a. Bernard Bauer (Integrated Lighting Concepts): Some of the plan review I have done found about the smallest open plan office type with cubicles was around 800 -1000 feet
 - b. Marissa Lerner (Energy Solutions): Please note the 2018 IECC applies for open plan offices greater than or equal to 300 square feet
13. Charles Knuffke (Wattstopper/Legrand): Current requirement allows actual wattage only if JA8 and only for recessed fixtures I believe. Change to drop 50W and JA8 makes sense. Only issue would be it currently calls out current rated wattage – which would be of the lamp holder.
14. Bernard Bauer (Integrated Lighting Concepts): This is for legacy luminaires but JA8 should not appear in nonresidential at all in my opinion. Relabeling holder may need to take place but should not call for a factor or UL relabel.
15. Peter Schwartz (PSA): We have developed that methodology for the CA DR Potential Study based on all IOU customer data for premise square footage, building type and electricity loads. The report spells out the breakouts for different customer size for different occupancies.
 - a. **Action Item: Jon McHugh to follow up.**

Poll Results

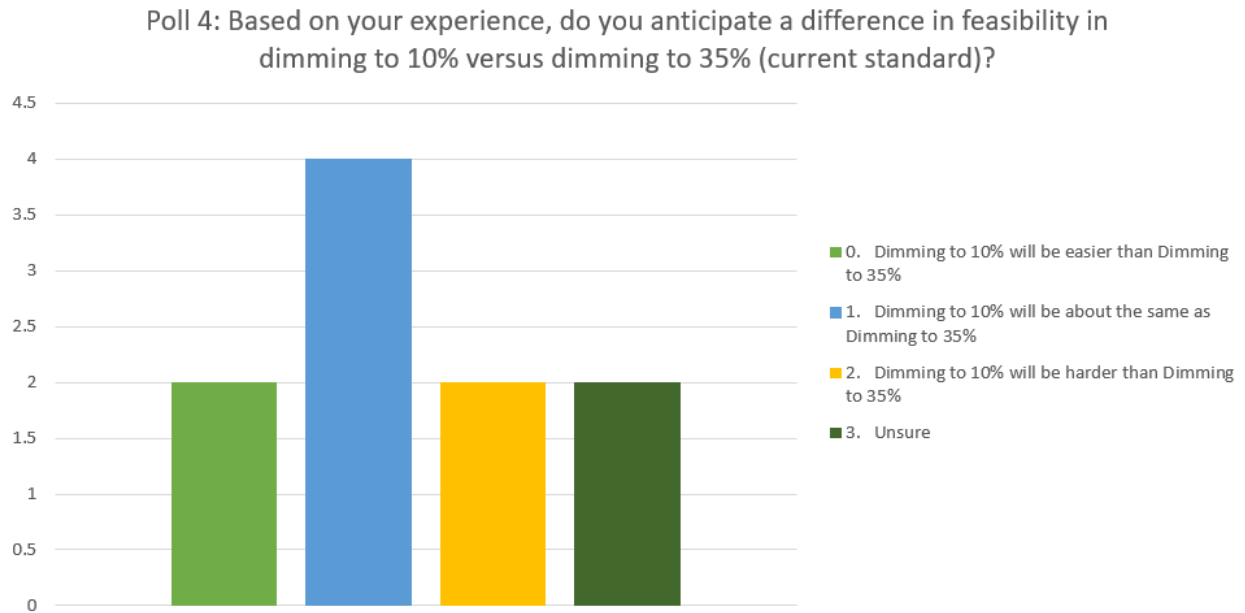


Figure 1: Results of Poll 4, Single Answer

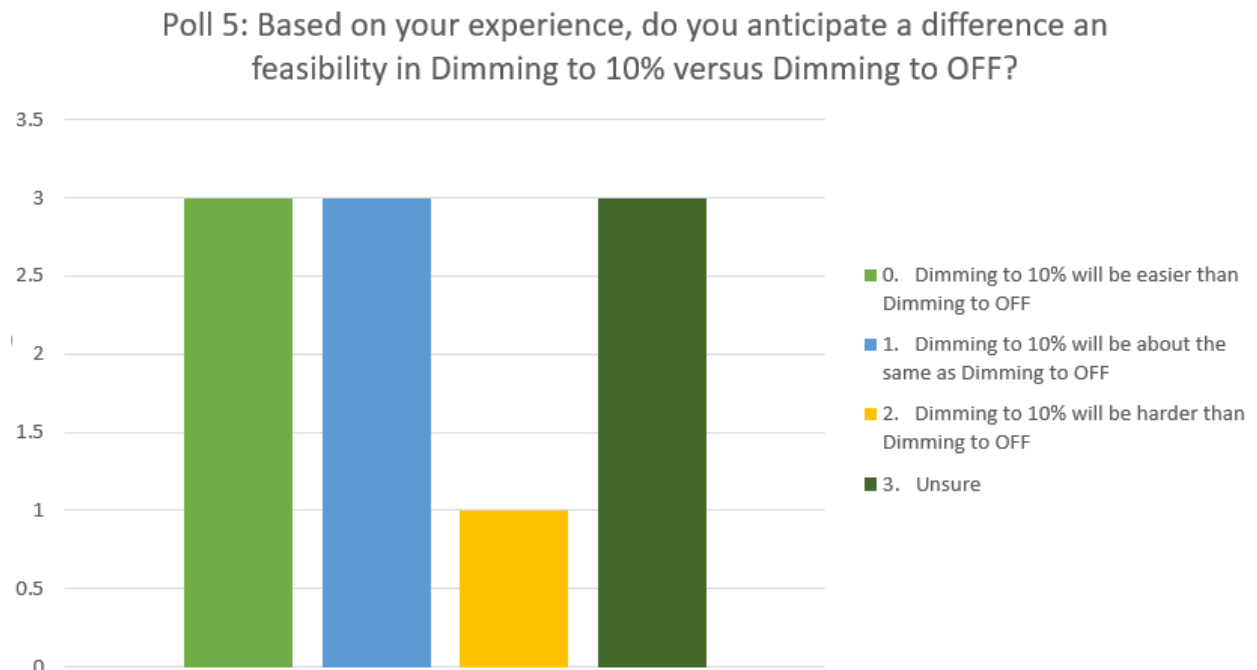


Figure 2: Results of Poll 5, Single Answer

Poll 6: Is the acceptance test requirement necessary that requires demand responsive lighting to not reduce the combined illuminance from daylight and electric light below 50% of designed illuminance of any one space?

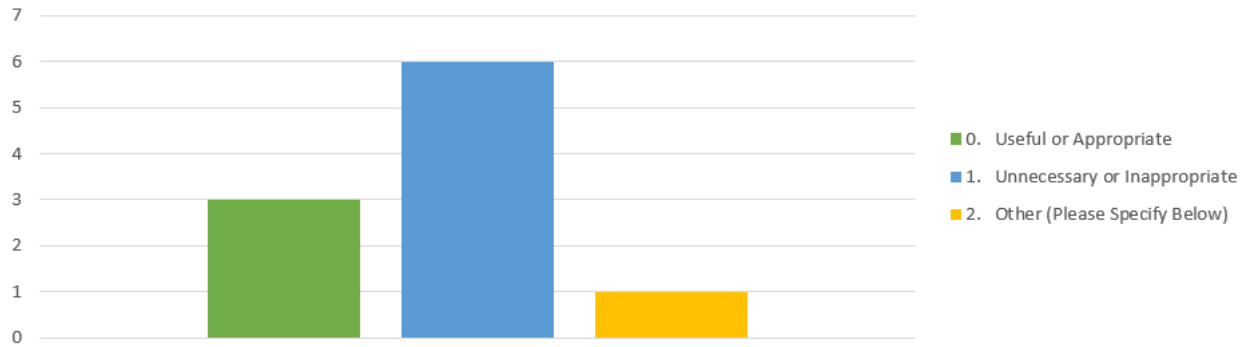


Figure 3: Results of Poll 6, Single Answer