

# Docket # 15-BSTD-01

April 16, 2015

## DO WE NEED BIG BROTHER?

Greetings

Following is the draft of my latest magazine article, which includes Title 24.

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California Energy Commission

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Should we get rid of Big Brothers, including energy codes and DesignLights Consortium (DLC)?

First let's look at energy codes, which include ASHRAE, International Building Code and California's Title 24.

At least for lighting retrofits, I firmly believe, based on substantial experience and feedback from numerous lighting professionals and end-customers, that at least Title 24, and probably others, actually hinder energy savings. There are two main reasons for this.

One is the extra cost often without any additional energy savings due to the permit process, measuring and calculating watts per square foot (WSF), inspections and automatic controls, even if they are not cost effective, can make the financial returns unacceptable to end-customers, so they may not do anything.

Automatic controls are an important issue. Although they may be cost effective with an energy code's maximum lighting power density (LPD), such as 1.0 WSF, they are often not cost effective below 0.5 WSF, because the high performance and low wattage lighting is consuming so little electricity, so there is very little extra to save. In offices and other applications, down to 0.3 WSF for ambient lighting is not that difficult to do, while providing good lighting. With people, who are good at manually turning off lights when they leave, operating hours can actually increase with occupancy sensors, because they allow the 10 – 15 delay for the lights to turn off after the sensors are installed.

At least for planning of one energy code, several dimming and control companies came to the many long meetings trying to show how great dimming, wireless control, internet of things (IoT), peak load shedding, automatic demand response, etc. can look wonderful. Most other people could not attend that much, because of their jobs. Many of these other people could have shown that dimming and controls are often not cost effective and that electric car charging stations and addressable HVAC units are so much more cost effective than efficient lighting for automatic demand response. Controls can be quite cost effective in specific applications, and lighting professionals and end-customers will install them in those projects, but controls should not be mandated across the board, especially for retrofits.

The second is that most lighting retrofitters are already getting well below mandated LPDs and would attain them with or without any energy codes.

With both of those reasons why have energy codes?

**There is a more important issue. Do organizations, which formulate energy codes, really have the right to limit people's choices?**

Please do not take me wrong, because I have been a strong advocate of energy efficiency for a long time. When I lived in California, I purchased the first Prius that was available. My wife also got one later. All of the lighting was T8, CFL and LED. We always manually turned off the lights when they were not needed. Shower, kitchen sink rinse and rain water was diverted to the garden. My current house has photovoltaics (PV) and mainly LEDs. With windows and ceiling fans, we do not need air conditioning. Our next car will be totally electric, which the PV system will be able to charge.

But I also believe that if people want to buy a gas guzzling car they should be able to buy it, as long as they pay a one time or yearly additional fee, even if substantial. That money could be used to fund energy efficient research or projects, rebates for others, plant trees, etc.

This also applies to people having the right to buy buildings. With provided LPD and list of quantity and types of controls, they should be able to buy the buildings that they want on based on price, electric costs, natural gas costs, etc. The state, county or city could charge an additional fee if the building is not energy efficient, and that additional fee could be used for energy efficiency. The utility could charge extra for electricity and natural gas, and maybe some of that could be also be used for energy efficiency. But people could buy the buildings that they want. I bet that most people would choose to buy efficient buildings, but depending on they plan to use those buildings, they may choose buildings without certain types of controls, because they would not consider them cost effective.

There is a big difference between saving energy and saving energy cost effectively, and it seems some energy codes do not fully understand that. Many end-customers may only accept up to three-year paybacks, which can often be done with just lighting, but with controls the combined payback may become four or five years, so the end-customers may decide not to do anything, buy new computers or do something else with the money.

Regarding retrofitting, since end-customers can keep what they have, they should be able to retrofit as they want without having to be burdened with energy codes.

Now the DLC. As you probably know, it approves commercial LED products with specific minimum lumens and maximum CCTs. Many utilities and other organizations will only provide rebates on products approved by the DLC. For example, 2x4 LED troffers and troffer kits need at least 3000 lumens and maximum 5000K. I do not know any good scientific or practical evidence for that, and the DLC has never provided their rationale to me. 1500 – 2000 lumens are often very good in offices with task lights, halls, restrooms and closets. Plus 3000 lumens are not sufficient for many retail, manufacturing and other applications. Over 5000K can be very good for increased visual acuity, circadian rhythms, performance – productivity, etc. If the DLC would at least approve tunable (dimming and Kelvin or color changing) products, which could be used above and below 5000K that would be helpful. Maybe the DLC was useful in the early years, but now the market has matured and can make better decisions for specific projects much better than DLC.

We live in a democracy, so we should have the right to choose, and not be constrained by any Big Brother, especially ones that the people are in ivory towers and have not designed, sold and managed a significant number of various new construction, remodel and retrofit projects.

Fresh water, such as in California now, is a different case, because there is not enough of it. So nobody should be allowed to hoard it.

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To help the CEC and others understand why higher light levels and corresponding higher wattage are beneficial for improved circadian rhythms, alertness, visual acuity, mood, perception, performance – productivity, sleep and general wellbeing, the non-profit Human Centric Lighting Society will have its first conference in Seattle on June 11 and all are invited.

<http://humancentriclighting.org/hcls2015/>

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You can email or call me 10 AM or later Pacific time during daylight savings time, which is 7 AM or later here in Hawaii. Thanks for your consideration.

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