**California Technical Forum (Cal TF)**

**Technical Forum (TF) Meeting Follow-Up Conference Call**

**March 6th, 2015**

**I. Participants**

Jenny Roecks, Cal TF Staff

Alejandra Mejia, Cal TF Staff

Annette Beitel, Cal TF Staff

Martin Vu, TF Member

Mary Matteson Bryan, TF Member

Spencer Lipp, TF Member

Ron Ishii, TF Member

Brandon Tinianov, TF Member

George Roemer, TF Member

Sherry Hu, TF Member

Armen Saiyan, TF Member

Liesel Whitney Schulte, Franklin Energy

Ed Reynoso, San Diego Gas & Electric (SDG&E)

Mehdi Shafaghi, Los Angeles Department of Water and Power (LADWP)

Grant Brohard, Pacific Gas & Electric (PG&E)

Steve Blanc, PG&E

**II. Key Decisions and Action Items**

* ACT: Cal TF Staff to draft memo summarizing issues and documenting Cal TF review, feedback.
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* ACT: Post VA and CalIPR reports on website.
* ACT: Review list of BrightSwitch deemed products in other jurisdictions
* ACT: Review ENERGYSTAR CFL quality standards and compare to DLC
* ACT: Review what requirements are in other jurisdictions
* ACT: Consider disallowing tubes without acrylic lens.
* ACT: Consider CalIPR metric for percent of maximum intensity.
* ACT: Martin to document findings from recommended follow-up items in memorandum to TF.

**III. LED Linear Tube Replacement**

Annette Beitel—I understand our process shouldn’t slow down the IOUs’ processes, but in terms of the Cal TF process, given the feedback we received from CPUC Staff on this issue, I think we need to be very careful and methodical about documenting our review and recommendations.

* ACT: Cal TF Staff to draft memo summarizing issues and documenting Cal TF review, feedback.

Martin Vu, RMS Consulting—

Power Point Presentation

Annette Beitel—So, Staff’s main concerns are safety and customer acceptance. Can you speak to the product reliability issue that Staff has raised? I’m just unclear what their concerns are really about, given that these tubes are successfully offered in deemed programs across the nation.

Martin Vu—Yes, Staff has provided us with a VA report that makes a broad conclusion about the effectiveness of LED tubes and points to a CalIPR reports that warn about product quality. However, both of these reports

* ACT: Post VA and CalIPR reports on website.

Annette Beitel—The other thing I’m hearing is that Staff has a preference for a different suite of LED options. DOE has already created a table that lists all of the available options along with costs, benefits, challenges, and opportunities.

Martin Vu—Yes, while some customers would benefit from a whole fixture replacement, these tubes enables us to access a different market segment that may be interested in an upgrade that does not trigger code.

* ACT: Add in memo a table that lays out all LED options, with possible costs and advantages to all customers.

Steve Blanc—We have recently been discussing with our Codes & Standards the initiative to change some of the Title 24 requirements for lighting, since they seem to be really stalling our ability to install much of anything new. We have to find a solution for moving forward with this technology and I’m hesitant to have it all derailed by a report coming out of the VA.

Brandon Tinianov—Since this is a plug and play measure, we are talking about replacing lamps with equivalent colors?

Martin—Yes

Annette Beitel—Have you compared the consortium LED standards to the CFL standards? Because if the CFL quality standards are enough to ensure customer satisfaction, why not the LED standards?

Martin Vu—As part of the DLC process, all products go through a rigorous three-step testing process before it can be accepted into the list: photometric, lumen maintenance, and in situ temperature. This is what the DLC does for all products.

Mary Matteson Bryan—I just want to confirm that LED Lighting Facts does confirm the testing results. The main difference is that Lighting Facts does not set minimum criteria, but the testing information is verified.

Annette—On the customer acceptance issue, is to follow up on George Roemer’s recommendation to look at the LED tubes deemed programs around the country and see if they have had them evaluated or had any customer acceptance issues. I asked BrightSwitch for a list of all of the rebate programs that are currently offering their product and will forward that list to you as soon as I receive it.

* ACT: Review list of BrightSwitch deemed products in other jurisdictions

*Quality Control Discussion*

Jon McHugh—Can you describe again

Martin Vu—In essence, the decision only calls out two metrics: Minimum light output and minimum lumen density. There are also metrics like color density and color density that we can consider setting minimum thresholds for it.

Annette Beitel—If Staff does not think DLC is good enough, have they told you what they think would be good enough?

Martin Vu—No, Staff has not given us a standard they would be comfortable with. However, what they are more concerned with is how the utilities will use the tool to filter out the top 50%.

Annette—I would like to make two recommendations. One, ENERGYSTAR has a protocol for verifying CFL quality, so I would suggest you compare that to what is being done by the DLC. The second recommendation is to look at the measure specifications that have been established by other utilities. From what I have seen so far, most utilities only require that the products be on either the DLC or Lighting Facts list.

* ACT: Review ENERGYSTAR CFL quality standards and compare to DLC
* ACT: Review what requirements are in other jurisdictions

Mary Matteson Bryan—I think you are exactly right. Filtering out poor quality products is the goal of these lists, so I don’t know if you would want to screen out any further.

Annette Beitel—So it sounds to me that Mary is recommending that there isn’t a need to filter out the top 50% from the list, since those are already filtering tools.

Martin Vu—That recommendation seems to be in line with the discretion awarded to the IOUs by the decision.

Jon McHugh—I’m looking at the CalIPR data from March 2014. My expectation is that this is not a long-term solution, that it is a strong market transformation technology. So, as much as California can create a market pull, we may want to ask if we are looking at the full range of technologies. I think it might be a mistake to limit the CCT to 3500.

I would recommend that Martin have a conversation with Mark Mageric at Energy Solutions to make sure that what we are proposing for programs is in line with the proposals for Title 20. I would also recommend the CEC’s product quality specification and the definition of low-flicker operations for California’s residential spec.

* ACT: Follow up with Energy Solutions to see if aligning standards with Title 20 is a possibility.
* ACT: Consider CEC product quality specification.
* ACT: Review California residential spec’s definition of low-flicker operations.

Liesel Whitney Schulte—One of the things that tends to really impact customer acceptance is glare. So the tubes that don’t have the lensing may be more likely to be rejected. You may want to think about rejecting those.

* ACT: Consider disallowing tubes without acrylic lens.

Jon McHugh—Are any of these lamps going to be offered through deemed programs?

Martin Vu—That is the eventual goal, but right now we’re trying to collect the data that won’t be available once the program goes deemed.

Jon McHugh—Figure 3 on page 13 of the CalIPR report has a metric for percent of maximum intensity that could be useful.

* ACT: Consider CalIPR metric for percent of maximum intensity.

*Field Trial Discussion*

Jon McHugh—Are you planning on a post occupancy evaluation or survey?

Martin Vu—Yes, we plan on interviewing the customers before and after. The question is how long after installation we should survey.

Annette Beitel—Does anybody know what CalIPR did?

Mary Matteson Bryan—I believe the CalIPR was a lab study, but they did have lighting designers and building managers come in to provide feedback.

Martin Vu—I believe the outcome of that portion of the study was that some lamps were adequate and others were not.

Jon McHugh—Does it make sense to test them in troffers, looking ahead to a potential deemed program? Once it goes there, I’m not convinced these won’t be going into troffers.

Martin Vu—My guess is that you don’t want tubes going into troffers because that would create a missed opportunities for technologies that would be a better fit. That is why the IOUs would include troffer restrictions in the terms and conditions of the deemed program.

Jon McHugh—I just think it is worth at least considering the possibility.

Liesel Whitney Schulte—If you do have a prismatic troffer, and it is a diffused lens, then you don’t have any of the glare issues identified by the CalIPR study.

Martin Vu—Maybe everyone can look at the DOE chart of recommended uses and let us know if it would be a good guide for the field trials and eventually for deemed program design.

Annette—At this point it would be useful for you to follow up on all of the recommendations made on the call, and we can work with you to memorialize your findings. We can then make a decision if we need further discussion.

* ACT: Martin to document findings from recommended follow-up items in memorandum to TF.