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Lutron Comments on VPF-LPM Draft Staff Report

Additional submitted attachment is included below.

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Submitted at: <https://efiling.energy.ca.gov/EComment/EComment.aspx?docketnumber=17-AAER-12>

Dr. Andrew McAllister
California Energy Commission
715 P Street
Sacramento, CA 95814

Lutron Comments on CEC's Voluntary Performance Framework for Low-Power Modes (VPF-LPM) v1.0 (Docket No.: 17-AAER-12)

Dear Commissioner McAllister:

Lutron thanks you for the opportunity to provide these comments on the Low-Power Modes Voluntary Performance Framework.

Founded in 1961 and headquartered in Coopersburg, Pennsylvania, Lutron Electronics is a leading innovator in lighting control, automated shading, and intelligent lighting. From our inception, Lutron products have proudly saved energy, starting with the invention of the solid-state electronic dimmer. Today, the company offers more than 15,000 energy-saving products, sold in more than 100 countries. In the US alone, Lutron products save an estimated 10 billion kWh of electricity, or approximately \$1 billion in utility costs per year.

Attached are detailed comments to support the following key recommendations:

1. Continue to exclude lighting controls from the VPF-LPM's in-focus product categories and evaluate whether a specification review of NEMA SSL-7A can demonstrate that compliant lighting controls are appropriately limited for LPM purposes.
2. Clarify that "always-on" product measurements should not be reported as *DCP inactive condition* measurements or used as VPF-LPM results.
3. Extend data reporting periods to no less than one year and propose changes to the in-focus product list and targets no more frequently than once per year to increase meaningful participation in this voluntary program.

We look forward to further collaboration with the Commission on this important work. Please contact me at (610) 282-6468 or sirving@lutron.com if you have questions or would like more information. Thanks again for your consideration.

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Lutron Comments on the Voluntary Performance Framework for Low-Power Modes v1.0

Lutron recognizes the complexity of developing a horizontal framework for Low-Power Modes and appreciates the Commission's collaborative approach throughout this process. The recommendations below are intended to help improve the quality and comparability of Low-Power Mode data and to provide additional context for lighting controls.

I. Lutron supports CEC's decision to keep lighting controls out of focus.

Lutron supports the Commission's decision to keep lighting controls "out of focus" under this Voluntary Performance Framework (VPF). This decision appropriately recognizes that lighting controls present technical considerations that differ substantially from other product categories addressed by the framework.

Recommendations:

- (a) Continue to exclude lighting controls from the VPF-LPM in-focus product categories.
- (b) Evaluate whether SSL-7A-compliant lighting controls can be assessed through specification review, rather than product-by-product DCP-LPM testing. SSL-7A indirectly constrains Low-Power Mode operation to enhance interoperability with LED light sources.

The DCP-LPM v1.0 is not applicable as a general test method for the lighting controls category. Applying DCP-LPM v1.0 to lighting controls would risk producing data that is not representative, comparable, or useful for VPF-LPM purposes.

Unlike edge devices, or other products evaluated with optional peripherals, lighting controls are typically sold independently of the lighting loads with which they will ultimately operate. Lighting controls are not designed to function without lighting loads and can be compatible with thousands of different lamps and luminaire architectures, each having diverse electrical characteristics.

The DesignLights Consortium (DLC) Qualified Products List (QPL) alone contains hundreds of thousands of high-performance commercial luminaires, each with potentially different electrical characteristics relevant to the measured Low-Power Mode consumption of the control-and-light source combination. This figure excludes residential lighting products and much of the broader commercial market, illustrating the wide range of compatible loads that a single control may encounter.

Consequently, testing with any single load cannot characterize the performance of the lighting control itself. The resulting measurement is representative only of that specific

control-load combination and includes the Low-Power Mode energy consumed by both the control and the connected lighting load(s). It is therefore not suitable for comparing lighting controls independently of their connected loads. Further, some light sources evolve rapidly. Even products that are sold under the same model number may incorporate design revisions that alter their electrical characteristics, making long-term consistency and repeatability of lighting control-and-load measurements increasingly difficult.

These load dependencies are well recognized within the lighting industry. NEMA SSL-7A establishes interoperability requirements for phase-cut dimmers and compatible LED lamps and luminaires. The standard acknowledges that acceptable Low-Power Mode behavior depends on the electrical interaction between a lighting control and its connected load, rather than the lighting control in isolation. The Commission has recognized the importance of this standard by requiring NEMA SSL-7A compliance for forward-phase-cut dimmers under the California Energy Code, Title 24, Part 6.

In most cases, the Low-Power Mode consumption of lighting controls is dissipated through the connected light source(s). If that energy is too high, light sources can appear to turn on when the control is set to standby/off. This issue was much more common in the early days of LEDs, before the introduction of SSL-7A. Although addressed for interoperability, SSL-7A effectively limits the Low-Power Mode consumption of compliant lighting controls.

Responses to the Commission's lighting controls questions:

Question 1: Is DCP-LPM v1.0 applicable to lighting controls?

No, not as a general method for the lighting controls category. DCP-LPM v1.0 will produce measurements that reflect the selected control-load combination rather than the lighting control itself. Different connected loads can materially affect Low-Power Mode measurements, so testing with a compatible lamp or luminaire cannot provide representative or comparable results.

Question 2: How can ANSI C137.63103 be leveraged?

ANSI C137.63103 should be the starting point to further characterize the performance of lighting controls or other lighting products. This test method is based on the latest international test method and has been evaluated for reproducibility through round-robin testing of LED-driver-based lighting systems by manufacturers and external laboratories.

II. “Always-on” products do not have a DCP inactive condition.

Products that are “always on” never transition into the *DCP inactive condition*, and the measured power represents *Active mode* operation. This is not a Low-Power Mode.

Recommendations:

- (a) If the Commission elects to publish measurements for *always-on* products, those measurements should be clearly identified as *Active mode* measurements and maintained separately from the VPF-LPM results.
- (b) In the definition of “*DCP inactive condition*”, remove the statement: “If the UUT continues to perform its primary function after performing the setup described in this procedure, it is tested as such and considered an ‘always-on’ product.” It implies that measurements collected while a product remains in an *Active mode* can nonetheless be treated as *DCP inactive condition* measurements, which is inconsistent with the preceding definition.

The proposed treatment of “always-on” products is inconsistent with the Voluntary Performance Framework’s (VPF’s) own definition of the *DCP inactive condition*. The VPF glossary defines *DCP inactive condition* as the state in which (1) user interaction has ceased, and (2) the product is not performing its primary functions.

Certain products continue to perform their primary functions after such user interaction has ceased. Consequently, they never satisfy the second criterion of the *DCP inactive condition* and therefore remain in an *Active mode*. As the VPF “aims to achieve power savings for electronics and appliances in low-power or inactive states”, such operation is clearly outside the Commission’s intended focus.

One of the purposes of this voluntary performance framework is to enable meaningful comparisons among products measured under their Low-Power Mode operating condition. Reporting *Active mode* measurements for some products alongside Low-Power Mode measurements for others undermines this objective because the reported values do not represent comparable operating states.

III. Achieving the VPF’s participation goals requires industry-specific targets and realistic reporting timeframes.

Lutron agrees that manufacturer engagement is essential to the success of the VPF. Because the VPF is voluntary, the Commission’s primary objective should be to maximize meaningful participation rather than focus on short-term data collection.

Recommendations:

- (a) Establish data reporting periods of at least one year and update the “in-focus” product list and targets no more than annually. This schedule better aligns with manufacturers’ planning cycles, allows more time to complete testing, and provides more stable expectations for voluntary participants.
- (b) Replace the proposed objective of representing 50% of the California market with industry-specific participation goals developed collaboratively with the affected manufacturers. Participation objectives should reflect product portfolio size, product diversity, testing complexity, applicability of the DCP-LPM, and the resources required to generate representative data.

Participation goals that are perceived as unattainable may discourage manufacturer engagement, ultimately reducing the quantity and quality of submitted data.

A six-month reporting window is insufficient. Manufacturers typically establish budgets, staffing, and technical priorities through an annual planning cycle. Significant voluntary initiatives requiring engineering and laboratory resources generally cannot be incorporated into existing plans without disrupting other regulatory obligations and product development initiatives.

Moreover, the draft contemplates developing improvement plans when participation goals are not met. In practice, this would divert many of the same personnel from data collection and further reduce the likelihood of achieving participation targets.

CEC aspires to collect data representing 50% of the California total market. While this goal may be feasible for industries with relatively few high-volume products, it becomes increasingly burdensome for industries with large product portfolios and extensive customer configuration options.

As an example, the DLC QPL contains more than 350,000 commercial luminaires, which is only a small portion of the lighting market. Collecting data that meaningfully represents 50% of such a diverse market using a manual test procedure is impractical. Although lighting controls are not currently an in-focus product category, this consideration is directly relevant to any future consideration of lighting controls.

As the VPF relies on industry participation, targets should be developed collaboratively with the affected industries.

Further, before missed participation targets trigger an improvement plan or regulatory consideration, CEC should first confirm with industry that the DCP-LPM is technically valid, repeatable, reproducible, and appropriate for the given product category.

IV. Summary of Recommendations

Lutron respectfully requests the Commission to undertake the following:

- (a) Continue to exclude lighting controls from the VPF-LPM in-focus product categories.
- (b) Evaluate whether SSL-7A-compliant lighting controls can be assessed through specification review, rather than product-by-product DCP-LPM testing.
- (c) Confirm that lighting controls will not be assigned participation or performance targets unless a lighting-control-appropriate data collection pathway has been validated.
- (d) Clarify that “always-on” products do not enter a Low-Power Mode and that any corresponding performance data will not be reported as *DCP inactive condition* measurements or used to establish Low-Power Mode performance targets.
- (e) Establish data reporting periods of at least one year and update the “in-focus” product list and targets no more than annually.
- (f) Replace the proposed objective of representing 50% of the California market with industry-specific participation goals developed collaboratively with the affected manufacturers. Participation objectives should reflect product portfolio size, product diversity, testing complexity, applicability of the DCP-LPM, and the resources required to generate representative data.
- (g) Confirm that missed participation targets will not trigger an improvement plan or regulatory consideration unless the applicable test method has first been determined to be technically valid, repeatable, reproducible, and appropriate for the product category.

Lutron Electronics, a lighting-controls leader and a member of the National Electrical Manufacturers Association (NEMA), remains committed to supporting the Commission’s understanding of lighting and lighting control performance.