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# Entertainment Software Association Comments on Low-Power Mode DCP3 RFI

*Additional submitted attachment is included below.*

November 18, 2024

***Submitted Electronically***

California Energy Commission
Docket Unit, MS-4
Docket No. 17-AAER-12
715 P Street
Sacramento, California 95814

**Re: Low Power Mode Roadmap (17-AAER-12): Entertainment Software Association's Comment in Response to the California Energy Commission's Request for Information and Feedback on the Proposed Data Collection Procedure for the Low-Power Mode Roadmap.**

The Entertainment Software Association ("ESA")[1] submits these comments in response to the California Energy Commission's ("Commission" or "CEC") Request for Information ("RFI") seeking feedback on the Commission's intent to establish a Data Collection Procedure ("DCP") for the Low-Power Mode ("LPM") Roadmap. These comments therefore provide ESA's feedback on the California Investor-Owned Utilities' Codes and Standards Enhancement Team's ("CASE Team") Low-Power Modes Updated Data Collection Procedure Proposal, dated February 3, 2023 ("DCP Version 3"), and related issues raised in the RFI's guiding questions.

## A. ESA and Its Members Support Continued Development of the LPM Roadmap with Further Improvements to the DCP Proposal.

ESA is primarily focused on the DCP proposals as they may apply to video game consoles. ESA and its members continue to support the Commission's goal to improve energy efficiency for consumer electronics in California's homes. ESA members have long engaged in self-regulatory efforts across the globe to measure and improve the energy efficiency of their devices as technology evolves.

Consistent with those past efforts, ESA has been an active participant in the LPM Roadmap proceeding to help ensure a workable framework. Combined with ESA members' ongoing efforts to provide energy efficient products and experiences for consumers, ESA's

[1] ESA is the voice and advocate of the U.S. video game industry. Its membership includes the three major console makers, among other game companies: Sony Interactive Entertainment, which makes and operates the Sony PlayStation platform; Microsoft, which makes and operates the Microsoft Xbox platform; and Nintendo, which makes and operates the Nintendo Switch platform.

members offer important industry insight that should be thoroughly considered as the LPM DCPs are finalized and put to use by device manufacturers.

ESA recognizes and appreciates the CASE Team's revisions to the DCP proposals from May 2021. From a game console perspective, ESA acknowledges several improvements made in this third version of the DCP, including: (1) the updated treatment of how to handle multiple game console peripherals; (2) clarification that any rechargeable batteries (including those in peripherals) should be fully charged before testing; (3) the new requirement that software, including any apps, be updated before testing; and (4) in Appendix B, updating the game console example to replace "save" with "suspends the game to RAM." With these changes, the LPM Roadmap DCP proposal has been greatly improved.

ESA's additional feedback on DCP Version 3 highlights **the following concerns**:

- The DCP should recognize that game consoles have one primary function: to play video games.

- Game consoles have characteristics that are distinct from other products in the multimedia horizontal cluster and should comprise their own product category.

- The horizontal test method must recognize and account for external factors that may distort energy consumption results, such as software updates.

- Modifications to DCP Version 3 are required to clarify the treatment of the reproducibility and repeatability of test results.

- The DCP Version 3 should be revised to ensure consistency with the International Electrotechnical Commission's ("IEC") forthcoming revised standby power measurement standard.

- LPM Roadmap's voluntary participation will be discouraged if the Commission utilizes the MAEDbS platform for data collection given the subjectivity of reporting, variations among product lines and the potential for eventual migration to mandatory standards.

- The LPM Roadmap should ensure that the Commission remains open to feedback on DCP implementation by stakeholders.

The points above are addressed in response to the RFI guiding questions, in the order of the questions posed.

## B. ESA Responses to Select Guiding Questions

1. Scope: What is your feedback regarding the scope of the DCP?

2. Scope: Are there any in-scope product categories listed in Appendix A that may not be effectively tested using the CASE Team's proposed DCP V3?

ESA responds to questions 1 and 2 jointly. Game consoles cannot be effectively tested under the DCP if the "typical primary function" includes anything other than playing video games. The purpose of the LPM Roadmap is to understand the energy savings potential of products when not performing their primary function, or when in an "inactive condition." Correct identification of a product's primary function is therefore fundamental to the success of assessing a product's energy savings potential under the LPM Roadmap.

For game consoles there is one primary function or purpose: to play video games. They do not have multiple primary functions, as currently suggested in the CASE Team's DCP Version 3,[2] Appendix A, listing vetted product categories and likely primary function(s), and in the RFI's Appendix A, providing examples of in-scope product categories. While some game consoles may be capable of streaming media, none of the current generation consoles include pre-installed native streaming applications and a vanishingly small percentage of media streaming consumers employ game consoles for that purpose.[3] Therefore, media play is neither an applicable nor accurate description of a primary function for game consoles and, in addition, is not the correct mode to measure low power.

Furthermore, a clear statement only identifying "playing video games" as the typical primary function for game consoles improves reporting accuracy. As described in the Statewide IOU CASE Team's Updated Data Collection Procedure Proposal and Round Robin Test Results for DCP Version 3 ("CASE Team Report"), the CASE Team "found that the third-party labs had difficulty identifying primary and supporting functions," and that to improve reporting accuracy, DCP Version 3 has been updated "to allow the manufacturer or organization ordering the test the option of providing product function."[4] Here, that extra step in clarification is unnecessary as ESA members agree that the only primary function of game consoles is to play video games.

Accordingly, the game console entry in Appendix A of the CASE Team's DCP Version 3 should be revised under the "Typical Primary Function" column as follows: playing video games. This change should also be reflected in the RFI's Appendix A and other LPM Roadmap materials.

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[2] Statewide Investor-Owned Utilities Codes and Standards Program, Updated Data Collection Procedure (for Inactive Condition Power, Version 3), Feb. 3, 2023, hereinafter "CASE Team DCP Proposal."

[3] See *Game Over: Consoles Now Account for just 6% of OOT Viewing,* Next TV (April 3, 2023) available at https://www.nexttv.com/news/game-over-consoles-now-account-for-just-6-of-ott-viewing (last visited October 15, 2024).

[4] CASE Team Report at 10.

3. Scope: Are there any products not listed in Appendix A that should be included in the scope of the DCP?

4. Scope: Is there anything else CEC should consider with regards to the scope of the DCP?

ESA has no comment on guiding questions 3 and 4.

5. DCP: What is your feedback on the method of establishing DCP?

6. DCP: Do you think the proposed DCP is appropriate for the initial data collection for the LPM Roadmap? If not, why so?

ESA jointly responds to questions 5 and 6. ESA appreciates the opportunities for comment on the determination of data collection procedures, and further appreciates the CASE Team's attention to concerns previously raised. ESA encourages the Commission to incorporate these minor adjustments to the DCP and for the Commission to remain receptive to feedback on the DCP as voluntary efforts to test products pursuant to the adopted DCP are underway.

7. DCP: Is there anything else CEC should consider with regard to the DCP?

ESA has three additional comments on DCP Version 3. First, the horizontal test method must account for certain external factors in order to yield accurate and consistent results. Second, DCP Version 3 should be revised to better address test reproducibility and repeatability. Third, the DCP should account for a forthcoming revision of the IEC standby power measurement standard.

*a. The Horizontal Test Method Must Account for Certain External Factors.*

In regard to the horizontal test method accounting for external factors, DCP Version 3 should fully account for product activity that could result in distorted (higher) energy consumption during a test (e.g., software updates). In the case of game consoles, a connected device may ping the manufacturer's servers for software updates or, where servers are experiencing a DoS attack, communication between the console and the online service is affected causing greater energy draw. For some software updates, such as critical updates to firmware, it may not be possible for the user (or tester) to disable the update function on a game console. In such a circumstance, the DCP should provide that where a game console begins an update during the test, the test should be canceled and repeated after the update is completed.

While the DCP Version 3 takes some measures to avoid these circumstances, further revision can ensure such events do not skew test results. In particular, the DCP Version 3 does not account for a circumstance where update activities *cannot* be disabled (see DCP Version 3, section 3), and adequate protections are not provided for unit under test ("UUT") invalidation procedures because DCP Version 3 does not clearly provide that the "active mode" is triggered when firmware or software updates occur (see DCP Version 3, definition for "active mode" and DCP Version 3, section 8.1.2).

In comparison, ESA believes these circumstances are accounted for under the European Union ("EU") networked standby standard (EN 50643:2018), which, in general, provides that

> In order to restrict influence of external factors, the reactivation trigger shall be initiated within a local test network without external network connections. In the case that a network connection shall be established and maintained during testing so that the reactivation trigger can be received; where identified in the information provided by the manufacturer, the stability of this external network connection may be checked or monitored.
>
> EXAMPLE 1: External factors can be maintenance, information/software updates or a denial-of-service attack.
>
> EXAMPLE 2: External network connections can be WAN, cable network, satellite link, etc.

Considering that DCP Version 3 does not fully account for such external factors during an inactive condition test, ESA suggests DCP Version 3, section 8.1.2 be further revised as follows:

> 8.1.2. During the DCP inactive condition test, the product was triggered into active mode**, information/software update, maintenance, or other anomalous situation**. The tester will determine the active mode**, information/software update, maintenance, or other anomalous situation** trigger and work to eliminate it from the test environment. The test will be rerun until all triggers are removed from the environment and the UUT remains in DCP inactive condition for the entire test period. For multi-component UUTs, the tester shall review data collected from each mains-powered component to ensure that all components have remained in inactive condition during the test.

*b. DCP Version 3 Should be Revised to Address Test Reproducibility and Repeatability Concerns.*

Although the overview section of DCP Version 3 states that reproducible and repeatable results are a goal, it does not adequately address issues related to reproducibility and repeatability. While the DCP does provide guidance on mitigating certain factors that can interfere with reproducible and repeatable test results, such as software updates and battery charging, there are factors that are not addressed by the DCP and cannot be controlled for during testing.

One factor that cannot easily be controlled for is variability between test samples. This is particularly true for game consoles, as recognized by the CASE Team, which had difficulty obtaining comparable products and achieving reproducibility between samples. As explained in the CASE Team Report, the CASE Team chose game console units for testing for which there was limited product availability, leading to purchase of game console samples from "lesser-

known retailers."[5] The CASE Team was unable to "obtain A and B samples from the same SKU."[6] Unsurprisingly, there was inactive power testing variability between the A and B samples purchased.[7] This chain of events raises questions regarding the potential for reproducibility between different testers of selected UUTs representative of a product line that have not been addressed by DCP Version 3, the CASE Team, or the Commission. Other factors that may impact reproducibility include product related factors such as manufacturing variations and minor revisions to product specifications.

In addition to variability in test results due to differences between samples, many devices will have variations in test results during normal operation in low power mode that will affect repeatability. For complex electronic devices such as game consoles, there are functions that can operate, sometimes randomly, even in low power mode. These functions do not always operate in a consistent manner, but rather change in frequency and length of their operation depending on the device, server, and other conditions, which can cause test results to vary. These functions are important to the proper operation of the device and user experience and cannot be disabled, scheduled, or predicted. External environmental factors such as Wi-Fi signal strength, traffic situation of the network, quantity of data received from the network, etc., can also introduce variability into the test results and are not easily controlled for during testing.

DCP Version 3 proposes to measure power consumption of the device in DCP inactive condition where multiple modes are intermingled, rather than measuring power consumption in individual and isolated low power conditions. This comes with the tradeoff that there may be significant variability between tests. Because strict repeatability and reproducibility is not achievable for many devices, ESA encourages the Commission to address these concerns prior to adoption of a LPM Roadmap DCP. We also recommend that individual test results that exceed targets not be deemed as failing to meet the objectives of the Roadmap and instead that the Commission adopt scientific and statistical approaches to managing large variations in test results. Achievement of Roadmap targets should be determined based on overall device low power mode characteristics, rather than individual test results.

*c. The 2011 IEC Standby Power Measurement Standard Relied Upon by DCP Version 3 Will Soon be Revised.*

DCP Version 3 heavily relies on IEC 62301:2011, the IEC's standard for measurement of standby power for household electrical appliances. DCP Version 3 references IEC 62301:2011 for establishing test conditions, instrument standards, and for some test procedures.[8] This IEC standard is now over a decade old, and the IEC is in the process of revising this standard.[9] The

[5] CASE Team Report at 9.

[6] *Id*.

[7] *Id*. at 11.

[8] See e.g., DCP Version 3, sections 1, 1.1.4, and 3.1.

[9] See IEC's standards development website for the TC 59 committee at https://www.iec.ch/dyn/www/f?p=103:38:0::::FSP_ORG_ID,FSP_APEX_PAGE,FSP_PROJECT_ID:1275,23,121812.

timeline given for a final update to this standard is mid-2026. The Commission should take this opportunity to consider a process for incorporating anticipated or eventual changes to IEC standards in the DCPs to avoid conflicts between the two testing regimens or unnecessary additional testing costs. To address these concerns, ESA suggests that DCP Version 3 references to IEC 62301:2011 clarify that updates to the IEC standard should be used, and that where there is a conflict between the LPM DCP and a later iteration of IEC 62301, the latest version of the IEC standard controls. A transition period of 24 months should be provided during which both previous and new standard versions are accepted.

8. Data Collection: What is your feedback on the CEC's intent to utilize the MAEDbS platform for the initial data collection?

The Commission should not use MAEDbS during the voluntary stage of the LPM Roadmap as it is ostensibly an enforcement tool for the Title 20 appliance energy efficiency regulations. Because of this, ESA expects use of MAEDbS as part of the LPM Roadmap to depress voluntary participation. Even where a stakeholder understands that MAEDbS is only being used for voluntary reporting of the data fields in the DCP Version 3 Reporting Tool, use of the MAEDbS platform raises questions for product manufacturers regarding potential regulatory risks if the LPM Roadmap moves towards mandatory standards. For example, if during the voluntary LPM stage, a manufacturer chooses not to report a particular field, makes an entry mistake, or otherwise misunderstands how to enter information in the database, what will occur if this data is carried over when the device becomes regulated? Risk-averse companies will simply avoid voluntary participation to ensure such inadvertent errors are not costly down the road.

Additionally, the use of MAEDbS may result in confusing representations of energy consumption in comparison to other public reporting. Game console manufacturers, for example, provide power consumption under different game console modes in accordance with the European Union Self-Regulatory Initiative.[10] The information directly reported by game console manufacturers pursuant to the EU Self-Regulatory Initiative and the results of inactive power consumption pursuant to the DCP are not likely to be identical. Use of MAEDbS to report inactive condition power consumption is not expected to assist the public in drawing this distinction. LPM Roadmap reporting in MAEDbS may also misrepresent to the public that these devices are being regulated similar to the appliances regulated under the Title 20 appliance efficiency program.

[10] *See, e.g.*, Sony PlayStation power consumption measurements in accordance with the European Union Self-Regulatory Initiative are reported at https://www.playstation.com/en-lb/legal/ecodesign/; Microsoft Xbox models' power consumption measurements are reported at https://support.xbox.com/en-US/help/hardware-network/power/learn-about-power-modes#:~:text=other%20power%20options:-,Press%20the%20Xbox%20button%20%EE%8F%A3%20to%20open%20the%20guide.,sources%20on%20the%20electric%20grid); Nintendo Switch consoles average power consumption measurements are reported at https://www.nintendo.com/en-gb/Corporate/Consumer-Information/Eco-design/Information-about-energy-efficiency-and-eco-design-of-Nintendo-Switch-family-consoles-2026830.html?srsltid=AfmBOooVI94ELPHJ0IJ3LcPBtQ-RUvrW9U1LMLmSEw5VCC4CsxJuanrG.

The data transparency and efficient data sharing goals of the LPM Roadmap are not reliant on using MAEDbS, while the deleterious effect on voluntary reporting caused by relying on the MAEDbS platform will undermine the objectives of the LPM Roadmap.

9. Data Collection: Is there any information that should be collected that is not in the DCP Reporting Tool V3? If so, please explain why.

10. Data Collection: Is there any information in the DCP Reporting Tool V3 that should not be collected? Is so, please explain why.

11. Data Collection: Is there anything else CEC should consider with regards to using MAEDbS for DCP data collection?

    ESA has no further comment on guiding questions 9 through 11.

12. Device Categorization: What is your feedback on this method of grouping and categorization, especially regarding what information is collected during the initial data collection?

ESA maintains that it is improper to group game consoles with other multimedia devices in a horizontal cluster for DCP testing purposes or for other purposes under the LPM Roadmap. Game consoles are vastly different from other products in the multimedia category and should be categorized as their own, individual product category. For example, unlike streaming devices, game consoles can operate as stand-alone devices that rely on local processing. This enables game consoles to operate on low-bandwidth networks or engage in gameplay with no network connectivity. Given the vastly different functions and energy profiles of streaming devices versus dedicated game consoles, it does not make sense to put them into the same category.

In addition, many of the other products listed in the multimedia category, such as smart speakers, are designed to respond to changes in ambient conditions or other environmental sensors while in an inactive condition. The design of current generation game consoles do not include this capability, further differentiating game consoles' inactive conditions from other multimedia products.

ESA is concerned that the horizontal clusters used for DCP purposes will be carried over to the power consumption targets, and for the reasons given above, game consoles should be considered separately from other multimedia products when the Commission reaches the stage of setting voluntary energy efficiency targets in the LPM Roadmap. Given the different functions, ambient condition responses, and energy profiles of game consoles in comparison to other multimedia products, ESA recommends that game consoles be excluded from the multimedia general product category and be given their own general product category under the electronics end use cluster.

13. Data Transparency: Please share your feedback or concerns with this approach to data handling.

    As discussed under guiding question 8, ESA members publicly provide information on

the power consumption of game consoles various operating modes pursuant to the EU Self-Regulatory Initiative. ESA's main concern regarding public reporting of test results from the DCP is that, due to different LPM purposes and testing processes, perceived dissimilarities will cause confusion among consumers.

Therefore, ESA requests that the Commission, prior to releasing the preliminary test results publicly, allow manufacturers to review the preliminary data and provide feedback to the Commission so that any concerns regarding discrepancies between the test results of the DCP and EU Self-Regulatory Initiative, due to the DCP test method or test process, can be addressed. This would assist the Commission and the public in appropriately and accurately distinguishing between the inactive condition reporting under the LPM Roadmap and other reporting programs. In addition, it would encourage more voluntary participation by manufacturers concerned about the DCP test method or test process and public disclosure of inaccurate or misleading results.

14. Industry Participation: Please provide your recommendations for the CEC to achieve high participation in data reporting.

For this guiding question, ESA refers to comments made above. In particular, participation will be encouraged where the Commission provides another opportunity for stakeholder feedback associated with voluntary product testing using the adopted DCP in order to further consider issues that may arise when the DCP is put into practice by parties other than the CASE Team. Additionally, ESA strongly recommends that the Commission avoid use of the MAEDbS platform for data collection as this platform will discourage voluntary participation because its purpose is for Title 20 appliance energy efficiency standards compliance and enforcement.

15. Please share any known or possible barriers to high participation in data reporting, including details on the cost of compliance with the voluntary data reporting.

16. Comments outside of the guiding questions.

ESA has no comment on guiding questions 15 and 16.

## Conclusion

The Entertainment Software Association acknowledges important, positive improvements have been made to the DCP. However, there remain some key areas where further refinements are needed: (1) game consoles have only one primary purpose (gameplay), not multiple primary purposes; (2) game consoles should be in their own category and not slotted into the multimedia category; (3) the horizontal test method must account for external factors that may distort energy consumption results; (4) more work needs to be done to address concerns regarding reproducibility and repeatability of test results; and (5) the DCP should avoid inconsistency with forthcoming revisions to the IEC standby power measurement standard. Additionally, ESA cautions against use of the MAEDbS platform for data collection and encourages the Commission to provide parties employing the adopted DCPs an opportunity to provide additional feedback on the testing procedures.

Please contact me at sberl@theesa.com if you require any further information or have any questions regarding the content of this request. We look forward to further engagement and discussion with the Commission and the CASE Team on these issues.

Sincerely,

/s/ Sara Berl

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