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November 4, 2010

Mr. Michael Leaon
Mr. Harinder Singh
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Subject: Proposed Energy Efficiency Standards and Case Study for Battery Charger Systems (docket # 09-AAER-2)

On behalf of Sony Electronics Inc, I respectfully submit comments to the California Energy Commission in regards to the Battery Chargers and Lightning Controls workshop held on October 11, 2010, the Staff presentation, and the Ecos CASE report titled "Analysis of Standard Options for Battery Charger Systems."

The Commission's Process

We would like to express our gratitude for inviting stakeholders to participate in the workshop. At the same time, we would like to express our concerns for not having the presentation materials available for review prior to the date of the workshop. It is evident based on the length of the CASE Study that Ecos Consulting spent several months, if not years, to create the case report while the period allowed manufacturers to provide initial comments is limited to four weeks. We strongly believe the mechanics and flow of the workshop would have been entirely different if manufacturers had access to the presentation materials in advance. We are a company that believes in transparent processes. As noted in the follow up informal meeting held on October 26, 2010, Ecos Consulting showed a lack of preparedness to respond to questions asked by manufacturers. Sony has serious concerns with the case report prepared by Ecos Consulting. Ecos Consulting has been notoriously known for having a "for regulation" posture.

Sony questions the necessity to pursue a state standard for Battery Charger Systems (BCSs) while the U.S. Department of Energy (DOE) has already started a federal rulemaking for BCSs. The DOE has prepared a technical document with hundreds of pages with detailed information. We believe the DOE has performed an in depth and comprehensive analysis that involved a number of stakeholders. The DOE's rulemaking is certain in differentiating small chargers one level further. All BCSs are not equal and the standard should not be applied equally to all BCSs. In addition, the DOE is only considering consumer BCSs in the rulemaking. The DOE rulemaking will allow manufacturers sufficient time to prepare for compliance while providing energy saving benefits at the national level.

The Warren-Alquist Act

During the Commission hearing, Mr. Rider presented requirements of the Warren-Alquist Act. The Warren-Alquist Act requires that appliance efficiency standards are for appliances that have a **significant statewide energy use**. In the Ecos Study section 4.2, it is clearly stated that "PG&E and its consultant Ecos estimate that the duty cycles of battery charger systems vary significantly from as little as one charge per month for video cameras to as many as three times a day for industrial lift-trucks." We don't believe the small chargers meet this requirement in the Warren-

Alquist Act. The Warren-Alquist Act also requires that they are cost effective and shall not result in any added total cost to the consumer over the designed life of the appliance. Ecos stated in the Executive Summary that "The cost of improving the efficiency of a single small battery charger system can be less than a dollar for some consumer products." We believe Ecos has absolutely no hands on experience in designing products. Therefore, it is easy to assume all that is required is to insert a one-dollar chip in the product. Redesigning a product requires added real estate to place additional components. It requires reliability and safety re-testing. It requires housing re-designs and plastic molds fabrications. In the end, the one-dollar solution is in the thousands of dollars. Consumers will absorb the cost of compliance. Such cost exceeds the energy savings over the life of the product.

Non-Disclosure and Confidentiality Agreements

We ask the Commission to provide details to stakeholders to ensure proprietary information is guarded and not made public when requested. Once the Commission informs stakeholders the plan for non-disclosure agreements, we will provide data to prove several estimates in the Ecos report are inaccurate and misleading.

Energy Usage

Sony believes the data used in the Ecos report to support the energy "estimates" is outdated. The data is not only an estimate, it is inflated and the numbers reported give the reader the false impression that the energy being saved is justified and that a state standard will help California meet the long term energy goals.

For purposes of simplicity in our comments, we will use data for products affecting our industry, that is Personal Audio Electronics, Laptops, and Portable Electronics. Table 7 in the Ecos report indicates that the energy use in Charge mode is 6.1w, 49.4w, and 20w respectively. Our data indicates that such products consume less than half that amount.

On Page 7 of the Ecos report, the following is stated: "Although duty cycles vary from product to product, the most significant contribution to overall energy use by small battery charger systems occurs in the maintenance mode (75%)." While it might be true that BCSs spend most of their time in the maintenance mode (when actually plugged to the AC mains), it is absolutely not true that the most significant contribution to overall energy use happens in the maintenance mode. Table 7 in the Ecos report clearly points out that the maintenance energy use for Personal Audio Electronics is 0.5w, 3.0w for Laptops, and 2.5w for Portable Electronics. The Ecos report fails to recognize consumer usage patterns. The duty cycle data presented in table 6 does not take in account that most end use products are infrequently charged. The BCS for such products are also infrequently connected to the AC mains (except for phones). Therefore the percent data in Table 6 is exaggerated and does not accurately represent consumer usage patterns.

Strategies for Improving Efficiency

Section 4.3.4 in the Ecos report outlines possible solutions for improving the efficiency of power conversion and charge controls. Sony would like to review the data found by Ecos to justify the cost associated with implementing such solutions for small and large BCSs.

To understand the feasibility of these improvements, Ecos modified a residential power tool charger to employ two of these strategies. Sony would like detailed information of the modifications the charger received. Information such as cost, part numbers, and a simple schematic diagram is highly desirable. In addition, Sony would like to know to what extent Ecos subjected this modified unit for Long Term Reliability, Usability, and Safety & Compliance testing. These are normal activities any manufacturer is faced with when modifying any product to be sold in the United States and in many countries that ultimately increase the cost of the product.

Small Battery Chargers Proposal

Table 8 in Section 4.4.1 in the Ecos report outlines the performance standard proposal for small battery chargers (consumer and non-consumer) as follows:

Table 8: Proposed Small Battery Charger Standards (Consumer and Non-consumer)

Metric	Requirement
24 hour charge and maintenance energy (Wh)	Less than or equal to: **$12 + 1.6E_b$** (E_b = battery capacity)
Maintenance Power	Less than or equal to: **0.5 W**
No Battery Power	Less than or equal to : **0.3 W**
Power Factor	Depends on input current

Sony believes the above proposal is extremely restrictive. The requirements for 24 hour charge, Maintenance and No battery should be 36 + 1.6Eb, less than 1.5w, and less than 1.0w respectively. Some BCSs are already efficient and consume less energy than other non-efficient products. We ask the Commission to utilize our proposed requirements for a first tier (Tier 1). The proposed standards in the Ecos report could then be tied to a second tier (Tier 2).

In addition, Sony believes the proposed standard should separate consumer and non-consumer products. Consumer products have shorter design and life cycles. The Ecos report recognizes this fact in section 7.2. Because of the short life cycle of consumer products, it is unjustified to modify BCSs to meet the restrictive proposed standard. A less restrictive standard will allow manufacturers enough time to reduce the energy use in BCSs and meet the Commission's goal.

Non-consumer products have inherently longer life cycles. In most cases, such products are equipped with an on/off switch to provide the user options for energy savings while the product is not in use but connected to the AC mains. These products may at times have displays to monitor battery charge. The advanced electronics to monitor charge conditions of the batteries and other features consume additional energy. While it is feasible to further improve the operation of these products and make better use of the advanced electronics in the future, these products undergo design changes every 5 to 7 years. Current non-consumer models will continue to be sold for the next 5 years. Additionally, the sale quantities associated with these products is extremely small compared to consumer products. The net energy use originated from such a small number of BCSs is negligible compared to consumer products.

Baseline Case
Section 5.1.1 in the Ecos report, it is indicated that in each of the 12.7 million households, there are approximately 12 battery small consumer charger systems. In total (consumer and non-consumer), there are 170 million small battery charger systems **in use** statewide.

There is no data available that suggests all 170 million BCSs are actually in use state wide. We believe less than one-quarter (less than 40 million) are actually connected and in use. The other 130 million BCSs are in homes not being used until the battery in the end use product requires charging.

Therefore, energy use figures presented in the Ecos report are questionable and unreliable. The savings potential described in section 6 of the Ecos report is simply an inflated estimate.

Double Jeopardy
It is unclear at the moment if energy use from an External Power Supply (EPS) is accounted twice. In the Energy Efficiency Battery Charger System Test Procedure version 2.2 Section A. Setup, three main categories are created to describe the product. However, the examples given in the different categories do not match the definition provided for the specific products.

For example, category 3 reads:

The battery and the product being powered stay connected during normal use. The product can be readily connected to or removed from a charger or a charging base. This category applies even if the control circuit is in the device with the battery and the external "charger" is really a constant-voltage power supply, such as most laptop computers.

Examples: Most cordless phones, cell phones, laptop computers, and electric toothbrushes, many cordless vacuums and most automotive and golf cart chargers.

Most cordless phones and cell phones do not stay connected during normal use. This fact contradicts the definition of category 3.

Under category 3 (no-battery test), it is required that if the product does not have a charging base (such as some camcorders/cameras) but does have an external charger or an EPS: the product shall be disconnected from the charger or the EPS. The charger or EPS shall be connected to input power. This implies the energy use in no-battery mode for the BCS is the same as the energy use of the EPS.

We request the Commission to review the test procedure and to ensure the energy of the EPS is not taken in consideration again in the BCS standard.

Incremental Cost
After reading the Ecos report, a person unfamiliar with the design and manufacturing process for battery charger systems would easily assume the propose changes could be achieved with little effort from manufacturers and with little to no cost to manufacturers to the consumer. However as explained in paragraph above Strategies for Improving Efficiency, there are a series of

activities that must be taken into account when redesigning any given product. Seemingly simple solutions require tremendous amounts of man-hours. A simple change such as increasing the size of the enclosure of an External Power Supply could cost between $20,000 and $50,000 for one single product. Sony is open to sharing exact figures with the Commission in order to demonstrate that the one dollar solution may not be as simple as stated by Ecos.

Effective Date

In the Ecos report it is recommended that the small battery charger system standard would go into effect in 2012. Manufacturers in general do not modify products based on draft standards mostly because requirements may change during the standard development process. For that reason, manufacturers require at least 2 years from the date of publication in order to redesign, test, and ensure compliance for most consumer products. We strongly request the Commission to acknowledge such need and to adjust the effective dates accordingly.

In summary, Sony would like to thank the Commission for the opportunity to comment. We strongly request the Commission to analyze stakeholder's comments in depth. No comment should be taken lightly. We welcome the Commission to contact us should there be a need for clarification or a need for further comments.

Sincerely,

M. Alan Benedict

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