ASSOCIATION OF HOME APPLIANCE MANUFACTURERS

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November 4, 2010

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

Subject: Docket # 09-AAER-02

2010 Rulemaking Proceeding Phase II on Appliance Efficiency Regulations

Dear Mr. Singh and Mr. Leaon:

We want to thank the Commissioners and Staff of the California Energy Commission for the opportunity to comment on the Codes and Standards Enhancement Initiative (CASE) for Title 20, Analysis of Standards Options for Battery Chargers.

The Association of Home Appliance Manufacturers (AHAM) represents manufacturers of major, portable and floor care home appliances, and suppliers to the industry. AHAM's membership includes over 150 companies throughout the world. In the U.S., AHAM members employ tens of thousands of people and produce more than 95% of the household appliances shipped for sale. The factory shipment value of these products is more than $30 billion annually. The home appliance industry, through its products and innovation, is essential to U.S. consumer lifestyle, health, safety and convenience. Through its technology, employees and productivity, the industry contributes significantly to U.S. jobs and economic security. Home appliances also are a success story in terms of energy efficiency and environmental protection. New appliances often represent the most effective choice a consumer can make to reduce home energy use and costs.

AHAM is also a standards development organization, accredited by the American National Standards Institute (ANSI). The Association authors numerous appliance performance testing standards used by manufacturers, consumer organizations and governmental bodies to rate and compare appliances. AHAM's consumer safety education program has educated millions of consumers on ways to properly and safely use appliances such as portable heaters, clothes dryers, and cooking products.

AHAM has been active in working with the CEC on both the Test Procedures for External Power Supplies (EPS) and Battery Charger Systems (BCS). AHAM efforts were aimed at improving

the test procedure to make it more representative of the way the product is used by consumers, and to represent an accurate measurement of the energy savings potential.

We would like to again express our concern for the way that the information was handled prior to the staff workshop on October 11, 2010. It seemed to us that some of the consultants and utilities did not want to share the CASE study report with industry prior to the workshop. We believe the staff of the Commission tried to facilitate the release of this information but were blocked by Ecos and PG&E. It was evident that Ecos and PG&E had released the information to the Air Resources Board and other entities but refused to release the information to the industry affected by this rulemaking. Purposefully withholding technical studies prior to a workshop does not facilitate an open, transparent process and does not provide the Commission with access to all views based on the same information. We are hoping that the CEC will remind Ecos, PG&E, and the other California Investor Owned Utilities that such a behavior will not be allowed in the future.

In addition, the CEC staff attempted to have an internet web meeting on October 26, 2010 at 10:00 a.m. We note that this "webex" meeting was not posted on the CEC web site or noticed for wider participation. We are pleased that a large number of companies from a few other industries were present, but there were still many industries and companies affected by this possible regulation that were not present. Also, the industry members asked many questions of Ecos Consulting during that conference call about the CASE study. We received answers such as, "I don't know" or "I did not bring my technical team" or "I will get back to you." This does not appear to meet the CEC requirement for openness and transparency of meetings. We urge you to ensure that all industry questions are answered and that all the data behind the CASE report be made available. As of November 4, 2010 we have not received answers to our questions.

The U.S. Department of Energy has released the Technical Support Document within rulemaking EERE–2008–BT–STD–0005. There are over 800 pages of documents and we recommend that the California Energy Commission should include this in the record, and we recommend that the data gathered by DOE be used in any CEC rulemaking as the technical basis.

> **AHAM Recommendation**: The Staff of the CEC should analyze and use the data presented by the U.S. Department of Energy in the EERE-2008-BT-0005 Technical Support Document. This data should be given higher priority and assigned higher weight than the analysis of Ecos Consulting.

The CASE study seems to be based on data that is not publicly available, while the U.S. Department of Energy has produced all the raw and analyzed data.

> **AHAM Recommendation**: The Ecos Data used as a basis for the CASE study should either be produced in whole and made publicly available or it should be stricken from the record.

AHAM appreciates the interest by the CEC in energy efficiency of battery chargers. We have appreciated the work that CEC has accomplished over the last five years on the test procedure.

AHAM joined with CEC in supporting a revision to the U.S. Department of Energy test procedure to include active mode energy measurement. It was largely through the work of CEC that the U.S. Department of Energy has adopted the active mode E24 measurement contained in the CEC test procedure in the procedure soon to be adopted by DOE. CEC was also instrumental in adopting a test procedure for large voltage/wattage battery chargers that was adopted by the DOE. In addition, CEC has been instrumental in encouraging the DOE to finalize its rulemaking on schedule. But, just because CEC adopted a test procedure does not mean that the Commission needs to adopt energy standards when the U.S. Department of Energy will soon complete its rulemaking.

Specific comments on the CASE Study:

1. **Unnecessary Elements in the Rulemaking**

We oppose the scope of the proposal from Ecos and PG&E on the battery charger issue. The U.S. Department of Energy (DOE) is engaged in a rulemaking on the very same products. Under the terms of the Energy Independence and Security Act (EISA) of 2007, DOE must complete a rulemaking on Battery Chargers by July 2011. DOE is well in line with this timetable, having had scoping workshops, modified the test procedure, and held a Determination workshop on October 13, 2010. DOE has released over 794 pages of Technical Support Document and Appendices to support their rulemaking.

We understand that the DOE rulemaking will only cover residential products. We also understand that the Energy Commission's charter is broader than that of the DOE.

> **AHAM Recommendation: The CEC should only pursue a rulemaking on battery chargers for those classes of products not being regulated by DOE.**

We understand that the bulk of the work following the CASE study will be done by the CEC staff. While all of us understand the need to save energy in California and other parts of our country, it should be done in a fiscally responsible manner. Spending money on a regulation that will be shortly superseded by DOE, is not a prudent use of CEC resources. Again, DOE is working on a regulation for battery chargers that will be effective in July 2013. No information has been presented by Ecos Consulting or PG&E that there is any energy that would be "left on the table" by CEC ceasing its rulemaking on residential battery chargers.

Our understanding of the Warren-Alquist Act, Section 25402 is that the duty of the CEC is to:

> (c)(1) Prescribe, by regulation, standards for minimum levels of operating efficiency, based on a reasonable use pattern, and may prescribe other cost-effective measures, including incentive programs, fleet averaging, energy and water consumption labeling not preempted by federal labeling law, and consumer education programs, to promote the use of energy and water efficient appliances whose use, as determined by the commission, requires a significant amount of energy or water on a statewide basis. The minimum levels of operating efficiency shall be based on **feasible and attainable efficiencies or feasible improved efficiencies that will reduce the energy or water consumption growth rates.** The standards shall become effective no sooner than one year after the date of adoption or revision. No new appliance manufactured on or after

> the effective date of the standards may be sold or offered for sale in the state, unless it is certified by the manufacturer thereof to be in compliance with the standards. The standards shall be drawn so that they do not result in any added total costs for consumers over the designed life of the appliances concerned.

We do not believe Ecos together with the Investor Owned Utilities have made a strong enough case for action. The Ecos/IOU proposal does *not* show that it is feasible for most battery charger categories or classes. Just because Ecos may have measured the energy output of one power tool battery charger does not mean that they have proved that any change to this one product is feasible on the wide range of consumer battery chargers in use.

In addition, Ecos has *not* shown that there is energy savings across the wide variety of consumer battery charger products used by many personal, kitchen and floor care appliances.

2. Disruptive

A rulemaking by the CEC would be incredibly disruptive to the marketplace. Manufacturers would have to shift precious resources to designing an entire series of battery charger products to meet a CEC set of standards only to have to redesign these same products months later to meet DOE standards. This is not efficient. As our consumer products industry is just beginning to recover from one of the most serious recessions in memory, this unnecessary change in government mandates would make it very difficult for especially Small and Medium Sized Enterprises (SME) to meet these requirements and still be able to provide products. This could result in several companies reducing their product line and therefore reduce competition. Such an unnecessary rulemaking does nothing to provide for the health of an industry and increase technology.

3. Inaccurate

It is unfortunate that Ecos Consulting and PG&E decided to release the CASE study after the U.S. Department of Energy released a significantly more detailed Technical Support Document. DOE has studied all of the same elements for residential battery chargers as Ecos Consulting (and much more). As was stated at the October 11, 2010, CEC Staff Workshop, Ecos *did not consider* all the possible types of battery chargers, *did not consider* the economic analysis, *did not consider* the full cost increase methodologies, *did not consider* Life Cycle Cost Analysis, *did not consider* manufacturer's impact, *did not test* current products in the marketplace and *did not even review* the candidate standards levels that were suggested by DOE. The testing data submitted by Ecos on all its charts are from battery chargers taken in the market from 5 years ago, far before the Tier 1 and Tier 2 CEC EPS regulations and, therefore, are totally inappropriate for consideration.

The proposed mandatory California energy efficiency levels for active mode, maintenance power and no battery power would eliminate 95 percent of the battery chargers on the market today. In addition, the levels suggested by Ecos would actually eliminate many of the battery chargers in categories that Ecos did not study. The CEC should conduct legitimate and rigorous technical feasibility and consumer payback analysis.

In addition, the energy savings from most of the categories of consumer battery chargers, especially those of inductive chargers and small residential battery chargers for motor operated appliances, are significantly overstated. Ecos has estimated savings based either on inaccurate estimations of the current situation, numbers of units in field, or used general averages of efficiency on products. Also, Ecos failed completely to consider the large numbers of people with personal care products who do not leave chargers plugged in constantly. This consideration of "infrequently charged" products was acknowledged in hearings before the California Energy Commission by statements from then Commissioner Art Rosenfeld and has been mentioned by AHAM and its members for over five years. Still, Ecos refuses to acknowledge the presence of this fact of use and continues to estimate that all chargers are left plugged in all the time.

On Page 15 of the CASE report, Ecos estimates that personal care products are unplugged 9 percent of the time. Ecos even estimates that power tools are left unplugged 37 percent of the time. The Ecos data is at best highly misleading but more likely not representative of the current usage. This data seems to have come from the Ecos Plug Load Analysis which is taken over a 7-day period and is flawed because *many personal care products are not charged during a week.* That study grossly overestimates the time in use by the basic construct of the study. After a far more extensive analysis, DOE estimates that many of these products are unplugged 23 hours a day.

> **AHAM Recommendation**: The data used by Ecos Consulting for analysis of infrequently charged products should be removed and new analysis undertaken based on the Department of Energy's data on usage, charge times, and infrequent charging.

The staff of the Energy Commission has asked for data. There is nearly 800 pages of data in the U.S. Department of Energy Technical Support Documents that result from 24 months of work, thousands of hours of analysis, manufacturer's interviews, marketplace analysis, testing on up to date products. This U.S. Department of Energy Technical Support Document should be entered into the record of the California Energy Commission and considered ahead of the proposal from Ecos and the IOUs.

4. Infeasible

The Ecos and PG&E proposal includes suggestions that the first tier of such a rulemaking would be effective in 2012. We disagree vehemently to this misrepresentation of the facts of impact on manufacturers and point out, as we have in the past, that BCS are not EPS. External Power Supplies may be designed and sold as an end product by their component manufacturers. But battery chargers are designed uniquely to each application. It is not possible to completely redesign all models of battery chargers for a wide variety of consumer products and have all these products tested by outside third-party energy and safety testing organizations in the amount of time suggested by Ecos.

In Section 8.1 of the CASE Study, Ecos wrote, "The recommended compliance year for small standards is 2012, allowing manufacturers approximately two years to source components and adjust designs." The proposal from Ecos is confusing and this date of 2012 appears to have been written in early 2010, when there would have been 2 years for implementation. If the CEC

regulation is finalized in March 2011, we suggest that the CEC adjust the implementation date until July 2013 at the earliest.

We need to develop a more realistic timeline. We have given additional consideration to the time it will take to develop new battery chargers through actual full production. Our average time among the AHAM manufacturers is 30 months. This is based primarily on the fact that the estimations of Ecos Consulting are for technology that does not exist in most of the products under our scope of coverage. Therefore, these products would need to be invented or developed from concept stage.

5. Incomplete Technology Assessment

As stated by Ecos Consulting at both the October 11, 2010 workshop and the October 26, 2010 conference call, they did not consider the information in the U.S. Department of Energy Technical Support Document. Ecos Consulting conducted a technical evaluation on many products over the years 2005-2010. Unfortunately, no attempt was made to isolate those battery chargers which were produced prior to the latest regulations in 2009 of the State Regulated EPS, which are unfortunately and incorrectly applied to the wall-adaptors of battery chargers. Thus the energy savings in the Ecos proposal grossly overestimates the amount of energy to be saved. This analysis must be reconfigured and re-entered as a technical assessment before any regulation can be considered by the CEC.

As was shown in testimony at the Staff Workshop, Ecos and the utilities did not consider the inability of many of the suggested technologies to operate at small charging voltages and wattages. In fact, some small chargers might need to add energy in order to drive some of the suggested integrated circuits (IC Chips). Thus, such a regulation would encourage companies to waste electrical energy.

Ecos claims that it cannot obtain information on the usage patterns of EPS and Battery Chargers. However, Appendix 7a of the U.S. Department of Energy Technical Support document has all of this information. The Warren-Alquist Act, Section 25402 (c) (1) states that the regulations should be "based on a reasonable use pattern…" To aggregate dozens of types of products into one category and average all information on usage is to negate the directive of the Act. The Ecos proposal would not take into account the different use patterns of battery chargers.

6. Erroneous Estimations

We believe the statement made by Ecos regarding the lack of improvement in battery charger energy efficiency is false. First, the base case does not indicate the changes that will be required to meet the EUP directives in Europe. Second, the base case does not include the changes in efficiency required by the changes to the U.S. DOE regulations.

7. Over Simplification

The Ecos CASE study suggests that there are only three categories of battery chargers for regulation. This is totally inaccurate. To suggest that the battery chargers for a small personal

care appliance battery charger using 3-5 Watts (example: small hair trimmer, electric shaver or small cordless vacuum) should be in the same product class as an 80-125 Watt battery charger for a laptop computer is a serious technical error. The charts used by Ecos in their attempted technological assessments show that very few if any battery chargers used for nickel-based battery chemistries would be allowed. The proposal by Ecos will deny most of the functionality and value of most of today's battery chargers.

The Ecos technical assessment assumes that all chargers will become "fast chargers" when such a feature is not necessary nor would this provide the value to the consumer for most consumer products applications. The assumption seems to be that "somehow, somewhere, someone will invent a product" is **not** a technical assessment. The Commission standards should be set based on what is available in each product class today and not based on what Ecos thinks will be available in the future.

The standards levels chosen by Ecos show that only battery operated products with Lithium Ion chemistry batteries meet the standards. If these are the only products that will be acceptable, this would cause a major shift in our industry from nickel-based battery chemistries which have shown tremendous value and quality to consumers of the last 25 years to a relatively new chemistry which has a significantly different cost and performance structure. Ecos did not assume the cost of this shift of battery chemistry in their cost or payback analysis, despite the fact that all their analysis assumes that it must happen. The shift to Lithium battery chemistries also must factor in two important changes. In the near future, the UL standards (UL 2575) will mandate additional testing of the battery packs that go into the products. This will mean that there will be additional testing and certification time to the schedule. In addition, we are expecting the Final Rule from the U.S. Department of Transportation on the shipment specifications for products with Lithium Ion batteries. The cost of these additional shipping requirements must be analyzed and included in any realistic cost or payback analysis.

We urge the Energy Commission to review the seriously flawed CASE study by Ecos Consulting and conclude that it needs significant work before it could be used as a basis for energy standards. In addition, CEC should also conclude that to spend significantly scarce resources on such a rulemaking that will totally disrupt the marketplace when the DOE rulemaking will be finished in a few months is unnecessary and wasteful.

We are disappointed in the technical assessment conducted by Ecos Consulting for the California Utilities and hope that the Commission will disregard this assessment and allow the use of the technical analysis of the U.S. Department of Energy to stand as the type of review that should be conducted for such a serious product rulemaking as the one for battery chargers.

> **AHAM Recommendation**: The CEC staff should not accept the data presented by Ecos Consulting and should develop the data to support a possible standard for consumer battery chargers based on the factual information presented by the U.S. Department of Energy and its Technical Support Document.

8. **Products that are Infrequently Charged**

A large number of portable appliances have battery chargers which are not left attached to the 120V supply constantly. Many of these products are infrequently charged.

The U.S. Department of Energy's Technical Support Document, Appendix 7a, shows numerous products charged less than 1 hour a day. Indeed, we mention that shavers, beard/mustache trimmers, hair clippers and rechargeable toothbrushes are shown to be charging from 0.14 to 0.26 times per day. We submit that the percentage of time for other personal care products, such as beard and mustache trimmers, hair clippers, etc. is likely significantly less than the figures shown. We therefore believe the "infrequently charged" products should be treated differently. The primary characteristic of these products is the fact that they are infrequently charged. In order to adequately measure the energy savings potential over the UEC, year, or lifespan of the product, CEC needs to separate these infrequently charged products into a unique class. In this way, the energy measurements will be representative of the way that the products are used.

> **AHAM Recommendation**: CEC staff should further evaluate the issue of products that are infrequently charged and adjust the energy savings and applicable standards levels accordingly.

9. <u>Use of Proprietary Technology</u>

We believe, based on our review of the CASE Study, that there are concerns that the proposed rule could result in the de facto requirement to incorporate proprietary, i.e., patented, technology, especially in the inductively charged and smaller (less than 100W) battery chargers. This, obviously, would be a serious problem—companies either would be barred from manufacturing or would need to license technology to comply with the standard, subject to royalties and other terms of a provider. It has long been a CEC policy that California regulations should not be set that favor or require particular proprietary technology. Any other approach would be anticompetitive and add considerable burden to the regulated parties, which here include many smaller companies. It does not appear that the CASE Study for these inductively charged and smaller battery chargers have taken this into account. The CEC Staff needs to study this issue.

> **AHAM Recommendation**: The CEC must study this issue to determine if any potential energy standards and classes of products would require proprietary technology in order to meet the suggested requirements.

10. <u>Usage Patterns</u>

We strongly disagree with Ecos and others that the issue of usage patterns is too complicated and should not be used to set energy standards. The Department of Energy has been able to recommend usage patterns can be used to set energy standards on Battery Chargers. We believe it is important to develop energy profiles and standards levels that are representative of the way that the product is actually used. There is considerable information in the U.S. Department of Energy Technical Support Document on usage patterns and we encourage CEC to use this information, especially the Unit Energy Consumption (UEC) calculations and usage patterns in Appendix 7a, which has data on 67 External Power Supplies and 57 Battery Chargers. AHAM

continues to support using usage patterns for determination of the energy use of each product. We believe, however, that there is still is work to be done to understand the percentage of time in each of the Active/Maintenance, No Battery, and Unplugged states. It may be necessary to update some of the usage patterns shown in the DOE Appendix. In addition, the time estimations for the time in the "unplugged" state need to be adjusted. We would be pleased to work with the staff of the Commission in order to obtain the necessary information.

> **AHAM Recommendation**: The CEC needs to adopt and use a system of usage patterns in order to properly justify the energy savings from any energy regulation on battery charger systems. It seems strange for Ecos to say that there is no data to support usage patterns and then to use such data in their energy savings justifications, but not in the setting of standards.

11. No duplicate regulations

Currently the California Energy Commission regulates the wall-adaptors of battery chargers as external power supplies. No indication was given at the workshop or in the CASE study if this would continue after the promulgation of CEC regulations on battery chargers. AHAM has always maintained that the wall-adaptor of a battery charger is a special device and does not power either the product or the battery charger. The wall-adaptor of a battery charger is but one integral item within the complete structure of the battery charger. Wall-adaptors for battery chargers are unique items that are designed specifically for their application and not purchased "off the shelf."

> **AHAM Recommendation**: Once the CEC has finished a regulation for battery chargers, it should adjust the definition of a State Regulated External Power Supply so that it does not include the wall-adaptor portion of a battery charger.

It is important that there should not be different but overlapping regulations on the same device. AHAM spoke to the CEC on this when the EPS regulations were first developed. There seemed to be an acceptance of the AHAM position at that time and we would ask the staff to carry this through.

12. Effective Date

AHAM members have further considered the effective date time. With the explanations from Ecos Consulting on the nature of the assumed technologies, and the fact that no current technology exists for many of the AHAM covered products, we believe additional time is necessary to conduct the necessary concept and development work in order to produce samples for initial performance testing. This was not anticipated in the earlier estimates we discussed on October 11, 2010. Therefore, we believe that if the CEC decides to move ahead with a regulation on the smaller consumer products battery chargers, 30 months is necessary to design and produce such products. This would include the time that is necessary to change most product designs from the current nickel-based battery chemistries to lithium-ion-based battery chemistries.

AHAM has studied the amount of time necessary to develop new products to meet the Ecos proposed levels. We believe a timeline would include the following elements, at a minimum:

Organizational Impact Study (Parts, Costs and Vendor Analysis)	1 month
Engineering Concept Review (Includes engineering of new technology, and contact with potential suppliers)	4 months
Prototyping and Engineering Build (Includes evaluation of new battery technology)	3 months
Design and Drawings	1-2 months
Testing First Prototypes	1 month
Modify Design	2-3 months
2nd Engineering Build and Test	2 months
Development of Molds and Fixtures	(concurrent 6 months)
Pilot Lot Build	2 months
De-bug and Quality Assessment	2 months
Performance Testing of Pilot Lot units	6 months
Procurement of Parts	(concurrent 4 months)
Safety Agency Approvals (Includes safety and energy testing of all existing models as well as new)	4-6 months
Packaging and Shipping Evaluation	(concurrent 3 months)
Final Review and Production Planning	1 month
Production	***

AHAM Recommendation: Based on this type of scenario, we believe the regulation should take effect 30 months from the final date the regulation is enacted by the State of California.

RECOMMENDATION

The CEC staff has encouraged the appliance manufacturers to make a proposal. We do so here.

AHAM proposes that the CEC only pursue a rulemaking on battery chargers for those classes of products not being regulated by DOE.

Thank you for the opportunity to comment on the CASE study and the Ecos/IOU proposal.

Sincerely,

Wayne Morris
Vice President, Division Services