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Via E-mail and First Class Mail

Mr. Harinder Singh
Mr. Michael Leaon
Dockets Office, MS-4
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512
docket@energy.state.ca.us

Re: Docket No. 09-AAER-02; 2010 Rulemaking Proceeding Phase II on Appliance Efficiency Regulations

Dear Mr. Singh and Mr. Leaon:

On behalf of the Association of Home Appliance Manufacturers (AHAM), I would like to provide our comments on the California Energy Commission's (CEC) Draft Proposed Amendments to Appliance Efficiency Regulations (May 2011) which propose amendments to the Efficiency Standards for Battery Chargers and Lighting Controls, Draft Staff Report, Staff Analysis of Battery Charger Standards, (Draft Staff Report), Docket No. 09-AAER-02; 2010 Rulemaking Proceeding Phase II on Appliance Efficiency Regulations (March 2011).

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 has been active in working with the CEC on both the test procedures for External Power Supplies (EPS) and Battery Charger Systems (BCS).[1] AHAM efforts were aimed at improving

[1] As we have stated in the past, 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

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. AHAM appreciates that CEC has attempted to address some stakeholder comments by proposing amendments to the original proposals in the Draft Staff Report. AHAM agrees with some of the changes, as discussed below. But we continue to believe that the proposed standards levels will outlaw nickel based battery chemistries for some products. And the proposed standards may also have unintended consequences for products that have very low Wh usage. Accordingly, we have proposed some changes which are described below.

Comments on the Draft Proposed Amendments

I. CEC Should Not Pursue the Battery Charger Regulation for Products That Will Soon be Covered by U.S. Department of Energy Regulations.

A. The CEC Rulemaking Will Soon Be Largely Preempted by DOE.

We reiterate that the U.S. Department of Energy (DOE) is engaged in a rulemaking on the very same products that are within the scope of CEC's proposed energy efficiency standards for battery chargers. Under the terms of the Energy Independence and Security Act (EISA) of 2007, DOE must complete a rulemaking on Battery Chargers by July 2011. Although DOE is unlikely to meet that deadline, we understand, based on inquires to DOE, that the final test procedure will soon be issued and that a notice of proposed rulemaking on standards levels is upcoming in as soon as a month. Accordingly, we do not expect the delay to be much longer.

As we have previously stated, CEC should only consider a rulemaking on battery charges for those classes of products not being regulated by DOE. Neither CEC nor Ecos Consulting has presented accurate information to show that there would be additional (or any) benefits in CEC issuing its own rulemaking on battery chargers so close in time to final DOE standards, especially across the wide variety of consumer battery charger products used by many personal, kitchen, and floor care appliances. We are mindful of the need to save energy in California and other states. But the most effective way to accomplish that goal in this case is through a thorough DOE rulemaking which will impact the entire country, and not through two parallel rulemakings at the state and federal level on essentially the same timeline for the same products. CEC staff has even recognized that it will need to re-evaluate the impacts to manufacturing redesign from federal versus Californian standards once DOE releases its notice of proposed rulemaking. (*See* Draft Staff Report, at page 10). **Dedicating limited monetary and other resources, especially as we struggle to improve the economy, to a regulation that will soon be superseded by DOE is not a prudent use of CEC's (or anyone's) resources**. CEC should not, therefore, continue with this rulemaking process for battery chargers that are the subject of the DOE rulemaking.

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these products tested by outside third-party energy and safety testing organizations in the amount of time suggested by the Draft Staff Report.

B. The Proposed Effective Date Is Unreasonable and Unattainable.

The Codes and Standards Enhancement Initiative report (CASE report), which is dated October 2010, states that "the recommended compliance year for small standards is 2012, allowing manufacturers approximately two years to source components and adjust designs. Electronic product design cycles typically run anywhere from one to two years . . ., allowing ample time for small standard criteria to be built into product specifications." (CASE report at 47, paragraph 8.1).

This statement in the CASE report demonstrates two critical points. First, CEC's proposed effective date of as early as July 2012 is unreasonable and unattainable. The CASE report, the very report upon which CEC relies to justify the battery charger rulemaking, recommended two years for compliance—the date of 2012 in the report was based on a report dated 2010. Thus, based on a report on which CEC is placing considerable weight, the earliest the battery charger standard, if CEC proceeds with it, should be effective is 2013. As we stated in our November 2010 and March 2011, comments, AHAM believes a more realistic timeline would allow for compliance 30 months from the final date the regulation is enacted. (*See, e.g.,* AHAM comments on Docket No. 09-AAER-02, dated March 15, 2011, at page 3).

Second, given that it is now 2011, and the proposed rule has yet to be issued, this further illustrates that CEC should not proceed with a standard that, based on its own report, would not go into effect until about the same time as the DOE standard which will cover many of the very same products.

If CEC proceeds with the proposed standards for battery chargers, it should re-consider the timeline based on the above comments. We understood during the May 19, 2011, workshop that CEC plans to take the necessary time to review and analyze comments, an approach AHAM strongly supports—this rulemaking should not be rushed simply to avoid preemption by DOE. Accordingly, because CEC cannot make the battery charger standards effective prior to one year after finalizing the rule, we expect that CEC will need to extend the effective date beyond July 2011. If CEC is to make the standards effective after July 2012, we urge CEC to delay the effective date until after the busy holiday season. It will make more sense for manufacturers and retailers if new products that comply with CEC's new standards are placed on the market on or after January 1, 2013, for example.

II. The Standard for Small Battery Chargers, if Pursued, Should Be Based on a Single Requirement That Includes a Usage Factor.

CEC proposes to remove power factor from the standard and to combine maintenance and no battery modes into one metric. AHAM strongly supports both proposals. AHAM continues to believe, however, that CEC's standard should be based on only one metric, which would combine 24 hour charge and maintenance energy with maintenance and no battery modes, and, importantly, include a usage factor. Based on the DOE Technical Support Document in Docket No. EERE-2008-BT-STD-0005 (TSD) and proposed test procedure, that is the approach we understand DOE will take. Such an approach will give manufacturers more flexibility in deciding how best to meet the standard given their specific products, which will lead to increased

innovation. And it will not decrease the energy savings for California because the total energy use per year is what is important. This integrated approach is consistent with many other appliance standards, and is the approach widely supported by stakeholders from various points of view.

The Warren-Alquist Act requires a usage factor—section 25402 (c) (1) states that the regulations shall be "based on a reasonable use pattern." The Ecos proposal would not take into account the different use patterns of battery chargers. To aggregate dozens of types of products into one category and average all information on usage is to negate the directive of the Act.

Accordingly, we strongly disagree with the CASE report determination carried over into the Draft Staff Report (and not changed in the amended proposal) that the issue of usage patterns is too complicated and should not be used to set energy standards. The CEC stated in its Draft Staff Report that "staff have concluded that the duty cycles, closely tied to consumer behavior, are likely to evolve with time and that standards based on specific duty cycles are not appropriate." (Draft Staff Report, at page 9). DOE has been able to recommend that usage patterns be used to set energy standards on Battery Chargers. And Appendix 7a of the DOE TSD has much of the information on the usage patterns of EPS and Battery Chargers that Ecos claims cannot be obtained. 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 DOE TSD on usage patterns, and we continue to 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 note that it appears that CEC based its estimates of the percentage of time a product is unplugged on a study done in 2006, which in many cases appears to have metered only one unit. That is not a sufficient sample size from which to draw conclusions.[2] We would be pleased, as we have previously indicated, to work with the staff of the Commission in order to obtain the necessary information.

Furthermore, CEC should adopt and use a system of usage patterns in order to properly justify the estimated energy savings in the Draft Staff Report. Energy savings estimates inherently must consider consumer usage, and so it seems strange to assert that there is no data to support usage patterns and for CEC Staff to then use such data in their energy savings justifications.

<u>Accordingly, AHAM urges CEC to work to further understand usage patterns and to adopt a system of usage patterns in order to properly justify a standard that consists of one metric. A one-metric standard cannot be pursued without a usage factor</u>.

[2] *See* Draft Staff Report, at 7, response to comment 10, citing http://www.efficientproducts.org/reports/plugload/Plug_Loads_CA_Field_Research_Report_Ecos_2006.pdf.

III. If CEC Proceeds With Multi-Metric Standards, the Levels for Small Battery Chargers Should Be Revised.

A. CEC's Proposal, Even With the Proposed Amendments, Is Not Technically Feasible.

Per the Warren-Alquist Act, section 25402, minimum levels of efficiency shall be "based on feasible and attainable efficiencies or feasible improved efficiencies that will reduce the energy or water consumption growth rates." CEC has not demonstrated that the proposed energy efficiency standards are feasible in California. Many products will be required to shift to lithium ion battery chemistries to meet the proposed standard, even as amended. Nickel based systems above a low watt/hour level will not be able to comply.

For many products, the proposed standards levels are likely only attainable by battery operated products with Lithium Ion chemistry batteries which would essentially require a Level V efficiency. The CEC is pre-empted by federal standard from requiring anything above Level IV efficiency. If these are the only battery chargers that will be acceptable for many end products, this would cause a major shift in our industry for several products 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. The CASE report underlying the proposed standards 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 for many products 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.

Even CEC's own data, as presented at the March 3, 2011, workshop, based on the data in the CASE report, shows that for many products a shift to Lithium Ion chemistry will be required by the new standards—no nickel based systems were compliant with the then-proposed 24 hour efficiency level above about 10 Wh;

1. No nickel based systems were compliant with the proposed 24 hour efficiency level above about 10 Wh;

2. No nickel based systems were compliant with the originally proposed Maintenance Power level above about 20 Wh; and

3. No nickel based systems were compliant with the originally proposed No-Battery Power level above about 20 Wh.

The proposed amended standard levels do not differ significantly from the original proposal—the levels will still create the same results. There are many medium-sized appliances that have

batteries that exceed 20 Wh, and for these, CEC has not demonstrated the feasibility through its survey of the population of existing designs.

The CEC's proposed amendments neglect a requirement of nickel-based chemistry that is due to the secondary recombination reaction that occurs in these sealed cells. The analysis provided by CEC staff at the last workshop and carried through in the amended proposal arrives at the proposed standard based upon an estimate of the self-discharge rate of these cells and the conversion efficiency. The power required to provide for the current needed to compensate for self discharge is not significant compared to the power required to provide the current required for the recombination reaction. This recombination reaction is necessary for these types of cells and this current is required to maintain the cells, not the just the current calculated on the basis of self discharge alone. Typical required values are between C/20 to C/50. The proposal allows just the requisite maintenance current at a moderately high efficiency. It would eliminate, almost entirely, continuous rate nickel based chargers (those that do not terminate).

In a similar way, the 24 hour charge and maintenance energy measurement reflects time both restoring the charge and maintaining the charge. The amended standards CEC proposes account only for the conversion efficiency of the charger and the control overhead and fail to consider the charge acceptance of nickel based chemistry cells over the entire charge cycle and the minimum current required for the maintenance portion of the measurement.

CEC's amended proposal would still outlaw nickel based chemistry chargers for battery energies above about 20Wh, something that the CEC stated was contrary to their objectives. AHAM and its members acknowledge that changes will need to be made to many products that contain nickel based chemistries in order to make them more efficient and help California achieve its energy savings goals. But an energy efficiency standard should not be a means for effectively banning a particular technology that still has consumer demand in the market. Nickel cadmium and nickel metal-hydride systems are in a large number of appliance systems and have proven to be extremely safe, durable, and effective over decades of application. There is no reason why these systems would not live on in the market for years to come.

B. If CEC Proceeds With its Current Approach, It Should Amend the Equations for 24 Hour Charge and Maintenance Energy and Maintenance Mode and No Battery Mode.

The amended standards levels for 24 hour charge and maintenance energy and maintenance mode and no battery mode for products of 100 Wh or less may not be achievable for products with very low Wh without increasing the size of the battery. Increasing the size of the battery in order to meet a standard level is contrary to CEC's goals because it does not achieve any energy savings—no changes have been made to the efficiency of the battery charger. Accordingly, we propose a floor to allow very small products to meet the standard. There are little to no energy savings to be found at those levels, and so we encourage CEC to adopt these changes.

In addition, because the proposed levels for both 24 hour charge and maintenance energy and maintenance mode and no battery mode are infeasible for many nickel based chemistries, AHAM suggests revised equations that would allow more efficient products with nickel based chemistries to meet the standard.

24 hour charge and maintenance energy (Wh) ("E24")	For E_b of 100 Wh or less, E24 shall be less than or equal to the greater of either: 1. $(12 + 3.5E_b)$ x N; or 2. 20 Wh Where N is the number of ports.
Maintenance Mode and No Battery Mode	For E_b of 100 Wh or less, Pm + Pnb shall be less than or equal to the greater of either: 1. $(0.7 + 0.07E_b)$ x N Watts; or 2. 1W Where N is the number of ports.

The AHAM proposed changes will still achieve energy savings, but will also permit the continued use of nickel based chemistries for mid-powered appliances. Without these changes, many products will require a switch to Lithium Ion chemistries. Such a switch will take considerably more time than CEC proposes to allow with an effective date of one year after the final rule is promulgated.

IV. The Labeling Requirement Is Superfluous and Should Be Removed.

CEC proposes to require that each battery charger be marked with a "BC" inside a circle.

AHAM opposes the proposed labeling requirement. A product label typically serves two purposes: 1) to differentiate products in instances where there are two standards (*e.g.*, UL/CSA); and/or 2) to differentiate products that use a voluntary standard. Neither of those purposes is served in this case. The CEC standard will be mandatory in California. And compliance with that standard will be adequately demonstrated both to CEC and the public through the certification/reporting requirements in the amended proposal. Accordingly, there is no need for a label—it will only serve to add significant additional cost and burden to manufacturers with no corresponding benefit to consumers or CEC. In addition, it will be superfluous and confusing once DOE preempts California's standard, which will be shortly after its effective date.

At the May 19 workshop a stakeholder proposed that the label also contain an indicator as to the level of energy efficiency. AHAM also opposes that proposal for the same reasons indicated above. Consumers will not understand such a mark which will appear amid a number of other marks already on the product, thus it serves no purpose but to add cost and burden.

V. Test Procedure Changes

CEC proposes to amend the test procedure to state that single phase battery chargers shall be tested at 115V at 60Hz and are not required to test at 230V at 50Hz. AHAM supports that amendment as it adds needed clarity to the test procedure.

At the May 19 workshop, AHAM posed the following questions, to which no response was given:

- Will the test procedure continue to be copyrighted? We understood that once it was adopted by California, that ECOS would need to relinquish rights to it. AHAM would support such an approach—all stakeholders must have the ability to freely use the test procedure.

- Will the test procedure be fully memorialized in the rule such that changes to it require formal rulemaking? AHAM would support such an approach, which is consistent with California and Federal requirements that revision to a mandatory test procedure must be done by rulemaking, and would oppose any approach that would allow for ad hoc changes to the test procedure without formal process that involves stakeholder input.

AHAM would appreciate answers to these questions so that we can better comment in the future.

In addition, at the May 19 workshop, CEC raised the issue of turning off additional functions during testing. This is an issue of interest to AHAM and we may submit comments or contact CEC at a later date in the near future with a position as appropriate.

VI. Definitions

A. Definition of Consumer Product

The proposed regulations do not contain a definition of consumer product. AHAM suggests that CEC adopt DOE's definition (10 C.F.R. 430.2):

> Consumer product means any article (other than an automobile, as defined in Section 501(1) of the Motor Vehicle Information and Cost Savings Act):
> (1) Of a type—
> (i) Which in operation consumes, or is designed to consume, energy or, with respect to showerheads, faucets, water closets, and urinals, water; and
> (ii) Which, to any significant extent, is distributed in commerce for personal use or consumption by individuals;
> (2) Without regard to whether such article of such type is in fact distributed in commerce for personal use or consumption by an individual, except that such term includes fluorescent lamp ballasts, general service fluorescent lamps, incandescent reflector lamps, showerheads, faucets, water closets, and urinals distributed in commerce for personal or commercial use or consumption.

B. Definition of Multiport Charger

AHAM notes that there appears to be a typo in the proposed amendment to the definition of multiport charger. The apparent typo is highlighted in red: "or charges multiple batteries at simultaneously with a single charge control circuitry."

Comments on the Draft Staff Report Generally

VII. AHAM Reiterates Its Previous Concerns Regarding the Draft Staff Report.

AHAM recognizes that the main focus of the comments CEC is seeking is to respond to the proposed amendments to the Draft Staff Report's proposals. But AHAM also wishes to highlight some of the concerns it continues to have with the Draft Staff Report. We urge CEC to review these concerns and address and resolve them in the proposed rule.

A. The Energy Savings Estimates Do Not Take Into Account Infrequently Charged Products.

The Draft Staff Report overstates 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. For example, Ecos in the CASE report failed completely to consider the large numbers of people with personal care products who do not leave chargers plugged in constantly. On Page 15 of the CASE report, Ecos estimates that personal care products are unplugged nine 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. Thus, the data used by Ecos Consulting for analysis of infrequently charged products should be removed and new analysis undertaken based on DOE's data on usage, charge times, and infrequent charging.

DOE's TSD, Appendix 7a, shows numerous products charged less than one 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. Furthermore, the consideration of "infrequently charged" products was acknowledged in hearings before CEC by statements from then Commissioner Art Rosenfeld and has been mentioned by AHAM and its members for over five years. For example, AHAM commented on "infrequently charged" products in our comments addressed to CEC Chair Jacqueline Pfannenstiel on January 30, 2008. 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.

We, therefore, believe the "infrequently charged" products should be treated differently than other products with battery chargers. 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. If CEC continues with the rulemaking on battery chargers, CEC

staff should further evaluate the issue of products that are infrequently charged and adjust the energy savings and applicable standards levels accordingly.

B. CEC Should Ensure the Proposed Regulations Do Not Duplicate Its Other Regulations.

Currently CEC regulates the wall-adaptors of battery chargers as external power supplies. No indication has been given as to whether this would continue after the promulgation of CEC the proposed regulations on battery chargers. AHAM has always maintained that the wall-adaptor of a battery charger is a special device. 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."

If CEC pursues a regulation for battery chargers, it should also 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 critical that there not be different but overlapping regulations covering 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 CEC to carry this through.

C. The Cost Analysis Is Flawed.

The Draft Staff Report states that, if "the manufacturer does not totally redesign the products, the cost to comply is more than offset by the energy savings over the life of the product." (*See* Draft Staff Report at 12). But, as discussed above, for several products, the proposed standards levels are only attainable by using Lithium Ion chemistry batteries, which will require redesign by appliance manufacturers. Based on a variety of reasons discussed above, switching from nickel-based battery chemistries to Lithium Ion battery chemistries adds significant cost to products in the appliance industry. The cost analysis in the Draft Staff Report was not altered in the proposed amendments to that report, nor were updated numbers or substantive underlying data for the numbers presented at the May 19, 2011, workshop. Thus, we must reiterate our questions and concerns.

We have a number of questions about the data on which the Draft Staff Report relies. What source did CEC/Ecos use for its conclusions? Where did the data originate and how was it collected? Were a variety of appliances with multiple charge levels and voltages evaluated? Without this information, it is impossible for us to provide effective feedback. DOE's TSD does contain cost information that was carefully collected—much of it came from manufacturers and it was reported in a transparent way. Based on comments from all stakeholders, DOE may be revising its cost and payback assumptions, and so we urge CEC to refrain from further action until DOE releases its notice of proposed rulemaking and accompanying technical support document. CEC should rely on DOE's data, which has gone through an open and transparent collection and review process. But, if CEC proceeds before DOE releases its notice of proposed rulemaking, we urge CEC to update its cost calculations and to provide all stakeholders with the data underlying those updated (and the original) calculations.

D. The Cost of Solutions for Compliance Is Understated.

The Draft Staff Report states that the "proposed battery chargers regulations are based on the premise that after the battery has been recharged the battery charger should shut off the flow of electricity. . . . There are battery charger systems currently on the market, across most product categories and price levels, that have already addressed the problem by including relatively inexpensive charge sensors and switches in their product designs. This capability can be implemented with inexpensive off the shelf technology that will not require major redesign of products regulated under the proposed standard." (*See* Draft Staff Report at 12-13).

This somewhat confusing assertion, provided without further description or qualification in the Draft Staff Report, was clarified somewhat during the March 3, 2011, workshop: what staff were describing was "charge termination" which is implemented currently in some chargers to switch from the bulk charging (during active mode) to maintenance mode. In the case of many chargers, this does not result in zero power being drawn as the cell chemistry requires ongoing maintenance to offset the effects of self discharge and because the circuitry itself requires power to operate.

The example provided during the Ecos presentation on March 3 to justify both the feasibility of this approach and its cost effectiveness accomplished just the opposite:

1. The "switch" solution was itself unable to achieve the proposed standard level, as was previously asserted by CEC staff, and required the additional benefit of a new power supply.

2. The solution was unfeasible, using a technique abandoned decades ago by manufacturers as being unreliable as it resulted in wide swings in product performance. This method may work on a single sample under laboratory conditions, but is not suitable as an engineered solution for a mass manufactured product. For example, the schematic uses a 12.74 K-ohm resistor, an extremely high precision (0.1% tolerance) part in a mass-produced consumer product.

3. The solution is also unfeasible as the current supplied to the battery during maintenance mode is insufficient to offset the self discharge of these cells across the range of temperatures that the product will encounter in charging. The product's battery connected to this charger will not remain charged and will not meet the performance requirements of the original.

4. Because the solution did not replicate the performance or the features of what it was intended to replace, it offered an unfair test of cost effectiveness.

5. The cost depicted was the "BOM" cost of the PCB only, and did not take into account the increased manufacturing cost or the additional costs of the practical implementation in the charger, e.g., the cost of implementing the charge LED.

6. The BOM cost analysis itself was faulty because it did not account for the cost difference of more expensive PCB materials, it used the same cost difference for the 14.4 V level V power supply as in the earlier 1.2 V example, and it uses a 0.1% tolerance resistor in the schematic but that price is not reflected in the BOM cost.

7. A level V power supply was offered as a solution, but there is no reason to believe that these power supplies are compliant with the proposed CEC power factor requirement, nor what the cost of a complaint power supply would be. At the workshop it was asserted that the cost of compliance took into account all four metrics, but it is clear in this example that power factor was not considered.

8. The price impact at retail as a result of material changes on the PCB are not correctly reflected by the mark-up factor that Ecos selected. Multiple tiers encountered in the supply chain from BOM change in the charger to the retail price of the end-product results in a compounding effect not correctly reflected in Ecos's choice of mark-up.

9. Ecos's calculation of the energy benefit should be limited to that achieved through the proposed standard alone. Since CEC has elected to not use a comprehensive measure of energy savings and instead insisted on four independent limits, savings in already compliant metrics cannot be credited against the cost of compliance to fulfill a non-compliant metric. CEC should not be able to use this as part of its justification if manufacturers cannot employ comprehensive energy savings to meet the standard.

10. Ecos did not detail their energy savings calculation of 14 KWh/year, but it appears grossly overstated, perhaps as a result of not applying the usage duty cycles that were utilized in the Draft Staff Report and are required by law (this is further discussed below).

Addressing the unequal performance, the unfeasible design solution, the incorrect material cost, the improper assessment of retail mark-up, and the actual energy saving, we expect that the consumer's payback years will be past the point when a CEC regulation based upon this report would be preempted by a better crafted federal rule.

E. <u>The Proposed Standards Will Likely Result in Significant Market Disruption.</u>

Furthermore, a rulemaking by the CEC on battery chargers will be incredibly disruptive to the marketplace even as amended. Manufacturers could have to shift precious resources to designing an entire series of battery charger products to meet a CEC set of standards only to potentially redesign these same products months later to meet DOE standards. 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 could 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, thereby potentially affecting competition. Such an unnecessary rulemaking does nothing to provide for the health of an industry or to increase innovation.

F. Proprietary Technology May Be Required to Meet the Proposed Standards.

We believe, based on our review of the CASE report, and contrary to the Draft Staff Report's unsupported statements that the proposed standards are technology neutral, that the proposed standards could result in the de facto requirement to incorporate proprietary technology, especially in the inductively charged and smaller (less than 100W) battery chargers. This is a serious concern—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 report for these inductively charged and smaller battery chargers have taken this into account. The CEC needs to study this issue.

AHAM urges CEC to 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.

G. The "Data" Underlying the Draft Staff Report Are Seriously Flawed.

First, we again comment that the CASE report seems to be based on data that are not publicly available, whereas DOE, in its TSD, has produced all the raw and analyzed data. The Ecos data used as a basis for the CASE report should either be produced in whole and made publicly available or it should be stricken from the record.

It is unfortunate that Ecos Consulting and PG&E decided to release the CASE report after the DOE released a significantly more detailed TSD. 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, and in our November 4, 2010, comments on the CASE report, 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.

We were disappointed in the technical assessment conducted by Ecos Consulting for the California Utilities and had hoped that the Commission would disregard it in favor of DOE's much more thorough TSD. The CASE report is a totally insufficient basis for a rulemaking on standards for battery chargers.

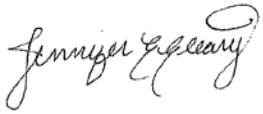
H. The Proposal Does Not Properly Categorize Products for Regulation.

The proposed energy efficiency standards are grouped in three categories—this is insufficient. 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. Although DOE's TSD does not present a perfect set of product classes, as we have commented in that proceeding, it at least shows that DOE has attempted to address the differences in products by establishing nine product classes.

The technical assessment in the CASE report 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"—it is not a technical assessment. The Commission standards, should CEC continue with its proposed standards, should be set based on what is available in each product class today, and not based on what Ecos Consulting thinks will be available in the future.

AHAM appreciates the opportunity to comment on the California Energy Commission's Draft Proposed Amendments to Appliance Efficiency Regulations (May 2011), and would be glad to further discuss these matters with CEC.

Respectfully Submitted,



Jennifer Cleary
Director, Regulatory Affairs

cc: Ken Rider, California Energy Commission