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Katharine Kaplan  
U.S. Environmental Protection Agency  
ENERGY STAR for Battery Charging Systems

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RE: Delta-Q Feedback on ENERGY STAR Program Requirements Product Specification for Battery Charging Systems, Eligibility Criteria, Draft 1 Version 2.0

Dear ENERGY STAR,

Delta-Q Technologies Corp., a manufacturer of battery chargers for applications such as floor care equipment, golf carts, consumer powersports, and automotive products, wish to provide the following feedback on the proposed rule for your consideration.

**Lines 82-84**

Delta-Q does manufacture the same “family” of chargers at different voltages for golf carts. We feel the provision is appropriate as the performance of these chargers differ only slightly due to the identical architectures. More detailed information about performance differences between different voltage chargers in the same family can be obtained by contacting Delta-Q Technologies.

Also, we feel variations in any connections should also qualify.

**Lines 162-163**

Delta-Q’s products can be used on a golf car or a similarly powered “Light Electric Vehicle”, which may be certified for operation on the road by the DOT. Could such a charger, which is the same product that would qualify under this program, still carry the Energy Star label?

**Lines 178-181**

At Delta-Q we view the higher power level divisions to be fairly arbitrary. Though the 3kWh level does separate smaller household appliances from motive equipment, the 10kWh level does not always separate out industrial equipment (lift trucks, booms), from recreational vehicles.

We feel it would be just as appropriate to apply the >10kWh criteria to the 3-10kWh group as all chargers in this range will be greater than 500W.

**Lines 310-314**

Delta-Q is very concerned about the test procedure as it is today from the perspective of a higher power (750-1500W) charger used on larger (>200Ah) batteries in the 3kWh-10kWh range. This concern arises from the known variability in the lead acid batteries used and how this could affect the efficiency of the entire system.

To date there are no known efficiency standards for lead-acid batteries, so we consider it unfair to include the batteries themselves in the rating of the charger’s efficiency. Though possibly a negligible amount in smaller (<10Ah) packs, this variability can become significant for larger batteries such as in golf carts or floor cleaning equipment (>200Ah). In these sizes, small changes in the battery’s internal resistance as well as maintenance of the battery can have a large effect on the battery’s ability to accept and provide energy. Delta-Q is able to provide data showing how the same battery pack can accept between 100 and 120% of its rated capacity on consecutive cycles before being considered “fully charged”. New batteries still

“maturing” in capacity may be even more variable. Clearly a standard for battery performance should be set in order to include them in this test procedure.

There are a few possibilities to create a better test standard for these charger/battery systems. An electronic load could be used to simulate a battery pack, a standard battery make/model with a certain age range could be used, or batteries above a certain size could be excluded from this test procedure. All of these options carry certain disadvantages, and Delta-Q, along with manufacturers of such battery packs, would be happy to assist in the improvement of this standard.

A simple solution to this dilemma is that the current criteria and test method for greater than 10kWh battery energy can be applied to those in the 3kWh-10kWh range, with adjusted Modal limits of course.

Thank you for this opportunity to contribute to your program. Please contact myself or Brian Ceresney at Delta-Q Technologies should you have any further questions about our feedback.

Sincerely,



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