

NEEP Comment Letter to U.S. DOE on Battery Chargers/External Power Supplies Preliminary TSD

Ms. Brenda Edwards U.S. Department of Energy Building Technologies Program Mailstop EE-2J 1000 Independence Avenue, SW. Washington, DC 20585-0121

Re: Preliminary Technical Support Document for Battery Chargers and External Power Supplies

Docket Number:	EERE-2008-BT-STD-0005
RIN:	1904-AB57

Dear Ms. Edwards:

Thank you for the opportunity to comment on the recently released Preliminary Technical Support Document for Battery Chargers and External Power Supplies. Northeast Energy Efficiency Partnerships (NEEP) strongly encourages the Department of Energy (DOE) to consider a number of issues as a means of improving the analytical process of developing its Notice of Proposed Rulemaking. The effort to set strong energy efficiency standards for these products is of paramount importance for Northeastern states and stakeholders. The region is home to several of the country's energy efficiency leaders, including several states that have set some of the most aggressive energy use reduction goals in the country. We are also home to an electrical grid that faces serious capacity challenges and to consumers who live with energy costs that surpass most of the nation, costs that unnecessarily drain the local economies. Strong energy efficiency standards on battery chargers and external power supplies offer the region, and nation, a smart, affordable strategy to sharply reduce consumption of electricity, directly impact peak electricity demand, significantly reduce pollution and create new economic opportunities.

We view this as a crucial stage in the Department's process to set revised standard levels. The Department's initial analysis of the potential benefits to states and consumers, as it is currently constituted, does not currently support the appropriate improvements that are achievable and cost effective. In order for these standards to realize the stated goal of affecting the maximum energy savings that is economically achievable, NEEP would like to address a number of issues that either threaten this goal or offer opportunities to attain superior savings.

General Comments

Upfront, NEEP would like to applaud the Department for all the work that has gone into developing this Preliminary Technical Support Document. This document covers two products that introduce a number of challenges beyond the typical rulemaking process. To its credit, the Department has shown a strong commitment to taking these challenges head on.

1. NEEP reiterates its support for "Approach A" that DOE proposed at the Framework Document stage

When addressing the issue of product definitions, the Department correctly chose the delineation described in Approach A. In the particular case of external power supplies and battery charging systems where one product is occasionally a component of another covered product (External power supplies are occasionally components of battery charging systems) the DOE had a decision to make about how these cases would be handled. Approach A utilizes a common sense approach that recognizes the need for a whole-system efficiency measurement



NEEP Comment Letter to U.S. DOE on Battery Chargers/Ext. Power Supplies Preliminary TSD 10/28/10 PAGE 2 OF 5

for battery chargers. The Department's initial research shows that there are limited amount of cases where external power supplies will be regulated under both standards.

2. Opportunities for Technology transfer between different product classes

One of the unintended byproducts of the numerous product classes for both external power supplies and battery chargers is that the Department has evaluated technology options in a very limited sense. The Department should more closely examine if technologies that are employed in related, but separate, product classes could be applied across all product classes. NEEP suggest that the Department examine the potential for technology transfers outside of the specified product class for both products.

3. Importance of appropriately valuing demand reductions due to minimum efficiency standards.

The demand reductions achieved by these updated standards will provide important alleviation to capacity constraints, an important challenge faced by much of the Northeast. While the Department has projected demand reductions for given standards in previous analysis, we urge the Department to begin quantifying those reductions in financial terms. The Avoided-Energy-Supply-Component (AESC) Study Group contracted Synapse to develop the study, "Avoided energy supply costs in New England; 2009 Report" (Attached). According to the report, efficiency measures that enable energy use/demand reductions provide a number of benefits, including;

"Avoided electric capacity costs due to the reduction in the annual quantity of electric capacity and/or demand reduction that ISO-NE requires load serving entities (LSEs) to acquire from the Forward Capacity Market (FCM) to ensure an adequate quantity of generation during hours of peak demand."

Section 6 of the report provides forecasts of avoided capacity cost resulting from energy efficiency measures in New England. For example, it is estimated that a measure that achieves one kW reduction in capacity would be worth \$67 per kw-year in 2010 and \$32 per kw-year out to 2024. These values are based on recent and forecasted ISO-NE Forward Capacity Market auction prices. We urge the department to use this report as a resource to help develop these sorts of financial quantifications for the products in this rulemaking, and in all other standards rulemakings.

4. Due to very high electricity prices in the Northeast, the cost effectiveness (life cycle cost analysis and payback periods) of a more aggressive standard becomes even more attractive for residents of this region.

Greater energy efficiency translates directly to lifetime cost savings which highly depend on the price of that energy. Northeastern businesses and consumers face some of the highest electricity prices (~50 percent higher than the weighted national average) in the country, only strengthening our region's call for strong standards.

Electricity price comparison¹

¹ Average Retail Price of Electricity to Ultimate Customers by End-Use Sector, by State, October, 2009, U.S. Energy Information Agency (http://www.eia.doe.gov/cneaf/electricity/epm/table5_3.html)



NEEP Comment Letter to U.S. DOE on Battery Chargers/Ext. Power Supplies Preliminary TSD 10/28/10 PAGE 3 OF 5

Region	Residential Prices (cents/kWh)
New England	17.3
New York	19.2
Mid-Atlantic	15.6
U.S. Weighted Average	11.8

5. Because many Northeast states have aggressive energy savings goals in the near to mid range future, strong federal minimum standards on battery chargers and external power supplies provide a smart, minimal-cost mechanism to help them in achieving such goals.

Issues related to Battery Chargers

1. An annual energy usage metric (Unit Energy Consumption; UEC) is an infeasible metric to employ for Battery Chargers. By simplifying the metric, the Department will ensure energy savings regardless of how the product is operated.

Based on the difficulties associated with determining appropriate usage profiles for the various product classes, the Department should strongly consider moving away from the UEC metric and adopting a different framework for regulating energy use in battery charging systems. The Department itself recognizes the inadequacies of the UEC approach in the Technical Support Document on page 101;

"Furthermore, DOE acknowledges that, in contrast to other consumer products rulemakings, where the number of distinct usage profiles is small, there are many BC end-use products with many different usage profiles. Thus, determining usage profiles representative of the wide variety of applications, as well as any future applications, could be difficult because of this wide variation. Nonetheless, usage profiles must be used—as PG&E agrees— to calculate the energy consumption associated with a potential standard in order to evaluate its impacts on energy savings. Therefore, regardless of their limitations, their incorporation in the standards analysis is unavoidable."

NEEP would like to present some alternative thinking on the battery charger efficiency metric. It should also be noted that PG&E has changed their perspective on this approach and will be submitting comments with further detail. The way the product classes are currently organized, products with very different usage profiles have been lumped together (currently based on battery energy and voltage). Although the Department has gone to great lengths to develop average usage profiles, their application in developing a metric is problematic, due to poor data and widely ranging usage profiles.

According to the Test procedure, battery chargers are to be tested in a number of operating modes (24 hour energy (active charging mode plus battery maintenance), battery energy, maintenance mode, no-battery mode, and unplugged). Products with battery chargers, which the Department identified over 80 of, spend a wide variety of times in each of those operating modes. Weighted average usage factors are combined with the measured power draw during these various modes to create daily and annual energy usage estimates. The Department risks developing an annual energy use standard for a product that is used in a very different way than the calculated weighted averages for that particular product class. This method of



NEEP Comment Letter to U.S. DOE on Battery Chargers/Ext. Power Supplies Preliminary TSD 10/28/10 PAGE 4 OF 5

developing efficiency standards will result in operating modes which are unrepresentative of the various products in a class.

Because standby modes vary so much across products inside the same product classes, it is simply infeasible to incorporate standby into a comprehensive metric. Using the measured component metrics eliminates the need for the use of poorly documented usage profiles. By eliminating the use of these assumptions, the Department would ensure energy savings. The use of a comprehensive annual energy use allowance may result in products being designed to save energy in one mode, while the standard is being designed to prioritize improvements in a very different mode.

A potential solution would be to set efficiency metrics that focus on two of the key calculations; an active mode (24 hour energy minus battery energy) and a standby mode (no battery mode). This approach would eliminate an overly complicated efficiency rating and ensure energy savings regardless of operator usage, a far more transparent and accurate way to ensure efficiency.

- 2. The Department needs to reconcile the big differences in several of the analyses when comparing "teardown" results with the data provided by manufacturers. In the instances that the Department conducted teardown analyses of battery chargers, there were consistent discrepancies between those results and the information provided by manufacturers. These differences showed up in the Engineering Analysis (cost-efficiency curves) and the Energy Use Analysis, which both feed into subsequently LCC and NPV Analyses. NEEP urges the Department to conduct further teardown testing and/or consult other independent sources that may be able to corroborate the accuracy of the results. Establishing accurate cost-efficiency curves and energy usage are essential to evaluating cost effective energy savings opportunities.
- 3. Need for a transitional product class between intermediate and max tech for Battery chargers

In many instances for battery chargers, there is a wide gap in cost effectiveness between the intermediate CSL level and the max tech CSL level, oftentimes one showing a very positive LCC and the other showing a very negative LCC. It is logical to assume that there may be a level in between these levels that would achieve more energy savings than the intermediate level, and do so in a cost effective way. The Department should work to identify new CLS levels that fall into these ranges.

Issues related to External Power Supplies

1. The Department needs to find a way to corroborate the cost-efficiency curve data provided to them by manufacturers.

The cost-efficiency curves developed by the Departments contractors from EPS teardown testing revealed little correlation between efficiency and incremental costs. In contrast, the manufacturer's cost-efficiency curves demonstrate a typical trend line. Instead of ignoring the teardown data, we urge the Department to rethink the results and consider consulting independent sources to establish a more direct relationship between efficiency and cost. For no other reason but to verify that the manufacturer data is sound.



NEEP Comment Letter to U.S. DOE on Battery Chargers/Ext. Power Supplies Preliminary TSD 10/28/10 PAGE 5 OF 5

At this point in the rulemaking, we would like to communicate our strong hope that the Department earnestly consider the ideas raised here. By carefully addressing these areas of concern, we believe that the DOE will be in better position to develop a more accurate, informed proposed rule. Thank you for your consideration.

Sincerely,

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Supporting Organizations;

Dan L. Sosland, Executive Director Environment Northeast