December 13, 2013

Ms. Ann Bailey
United States Environmental Protection Agency
Office of Air and Radiation
1200 Pennsylvania Ave NW
Washington, DC 20460
batterychargers@energystar.gov

Subject: NRDC-NEEP-ASAP Joint Comments regarding EPA's proposal to sunset the ENERGY STAR specification for Battery Charging System (BCS) products

Dear Ms. Bailey,

This letter constitutes the comments of the Natural Resources Defense Council (NRDC), Northeast Energy Efficiency Partnerships (NEEP), and Appliance Standards Awareness Project (ASAP) to EPA's proposal, dated November 22, 2013, to sunset the ENERGY STAR specification for Battery Charging System (BCS) products.

We thank EPA for its leadership in advancing battery charger energy efficiency and appreciate the opportunity to comment on EPA's proposal. We strongly support EPA's ENERGY STAR Program, because it provides customers with an easy way to identify efficient products. This helps drive energy efficiency in the market, saving customers money in the form of lower electricity bills, and reducing energy consumption and associated climate change and toxic air pollution.

We agree with EPA that the current v1.0 BCS specification is no longer effective due to the existence of California's more stringent and more comprehensive energy efficiency standards. However we believe that sunsetting the BCS ENERGY STAR program is premature ahead of the U.S. Department of Energy's (DOE) expected release of final federal energy efficiency standards for battery chargers. DOE's standards would eventually preempt California's and may not be as stringent as existing CEC standards. In addition, there appears to be substantial opportunities for energy savings in product categories not covered by CEC, such as wireless and automotive battery chargers, as well as in efficiency metrics not included in either CEC or DOE standards such as power factor. We support sunsetting or suspending the v1.0 BCS specification but urge EPA to maintain the BCS ENERGY STAR program until DOE's final rule has been published, and further analysis of the remaining energy savings potential in battery chargers has been conducted.

1. BCS Products Not Covered by CEC or DOE

Wireless charging and automotive battery chargers are two BCS products categories which are not currently covered by either the CEC standards or DOE's proposed rule[1]. These product categories are growing rapidly in the market, and could represent a substantial energy savings opportunity within 5 years. There is currently no plan by either CEC or DOE to cover these products, which leaves an essential role for ENERGY STAR to influence the design of these products and to pave the way for future standards.

[1] CEC covers wireless chargers sold as a system (pad and receiver). However, this represents a small portion of the market; the majority of products are sold as two separate components: (1) charging pads; and (2) receivers integrated into products such as cell phones.

a) Wireless Charging

Wireless battery charging is a rapidly emerging technology in the field of electronic products (cell phones, tablets, computers, gaming accessories, etc.). Several technology standards are actively being developed (WPC, PMA, A4WP), for both closely-coupled and loosely-coupled technologies, and several hundred products are already available on the market[2]. Given the convenience and innovative aspects of this technology, coupled with the short upgrade cycle in consumer electronics, wireless charging could see rapid consumer adoption over the next few years.

There is a significant risk that the deployment of this technology will result in substantial increase in BCS energy consumption due to wireless transfer losses compared to conductive energy transmission.

ENERGY STAR has a key opportunity to establish a test method for wireless chargers, enable the collection of efficiency data and establish initial standards that can start driving energy efficiency in this market segment.

b) Automotive

The market for automotive chargers is growing rapidly following the deployment of electric vehicles (EVs). Most EV owners have a charger in their home, and there is also a growing infrastructure of publicly-accessible chargers. So far, most automotive chargers are wired, but wireless automotive chargers are also emerging[3].

The volume of automotive chargers is much lower than that of mobile consumer electronics chargers. However each automotive charger uses a large amount of energy which can lead to significant energy losses.

There is little incentive for the EV and EV Supply Equipment industry to reduce charging losses because charging efficiency does not influence EV range, and therefore has little impact on the user outside of their electricity bill.

Automotive charging is another key opportunity for the development of a test method and an ENERGY STAR specification, and the collection of efficiency data.

2. BCS Efficiency Opportunities Not Covered by CEC or DOE

Power Factor

Energy losses due to poor power factor are not currently addressed by either the CEC standards or DOE's proposed rule.

Power factor (PF) is a measure of current quality. Electronics typically use switch mode power supplies that draw current in short spikes which often bear no relation to the voltage waveform,

[2] Texas Instrument White Paper: A global wireless power standard will open the market, encourage consumers to live without power cords: http://www.ti.com/lit/wp/slyy036/slyy036.pdf
[3] ORNL: Wireless Charging System for Electric Vehicles, http://web.ornl.gov/adm/partnerships/events/Dec_Spark/Paulus_Wireless%20Power%20Transmission%20Presentation%20-%20Paulus%20v2.pdf

resulting in a low power factor if uncorrected[4]. Devices with low PF have proportionately higher AC current draw, which increases the resistive losses in the building wiring. Electronic devices can have PFs as low as 0.4. A device with a PF of 0.4 draws 2.5 times the current compared to an ideal load with a PF of 1, which means that building wiring losses could be 6.25 times higher than the ideal case.[5]

Poor power factor causes energy losses both on the customer and utility side of the meter. On the customer side, commercial buildings typically incur higher losses due to the longer length of wiring in the building. The IEA estimates savings opportunities from power factor correction of 2% for the residential sector and 11% for commercial buildings.[6]

While PF savings may not be substantial enough by themselves to justify an ENERGY STAR specification, they should be part of a more comprehensive effort to improve BCS energy efficiency.

3. Incremental Savings Opportunities from Increased Stringency

There may also be significant remaining cost-effective savings opportunities for BCS products covered by CEC standards through improved efficiency.

EPA's memo states that its analysis of California's certification database identified very limited potential additional savings compared to the California standard. However the market has just adjusted to CEC standards which have been in effect for less than 12 months. It is still early days and we expect that more efficient products will become available on the market as technology evolves through both natural- and standards-induced innovation, for example new Federal external power supply standards in the U.S., and new EU Code of Conduct levels that are coming into effect in January 2014.

In addition, DOE may adopt BCS standards that are less stringent than California's in some product categories, leaving room for further cost-effective savings.

We expect that DOE's final rule will provide the most up-to-date assessment of remaining cost-effective savings opportunities for covered products.

Given that DOE's final rule is expected in December 2013, we urge EPA to wait for this rule, take the time to analyze it, and allow stakeholders the opportunity to do the same before reaching a conclusion on remaining cost-effective savings opportunities for covered products.

4. Conclusion

We support EPA's decision to sunset the current v1.0 BCS specification. However, instead of sunsetting the BCS program, we urge EPA to evaluate the savings potential in BCS efficiency areas not effectively addressed by current or upcoming standards, and to consider developing a comprehensive BCS specification that captures these opportunities.

Thank you for considering our comments.

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[4] IEA: Power Factor Correction: An Energy Efficiency Perspective, http://standby.iea-4e.org/files/otherfiles/0000/0041/AGO_G3A_PowerFactorCorrection_FINAL_2011_0617-M.pdf
[5] *Ibid*.
[6] *Ibid*

Respectfully submitted,

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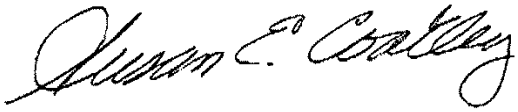

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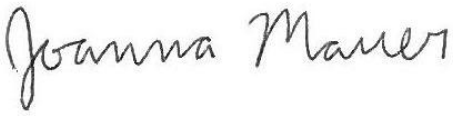

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